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USDA United States
Department of
Agriculture

Natural
Resources
Conservation
Service

Washington Basin Outlook Report February 1, 1999

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Basin Outlook Reports and Federal - State - Private Cooperative Snow Surveys

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How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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Washington Water Supply Outlook

February 1999

General Outlook

January proved to be a wet and snowy month all across Washington. Valley temperatures were above normal bringing above average precipitation. Mountain temperatures remained near normal, causing rain soaked clouds to dump extreme amounts of snow in many parts of Washington. Poor weather and avalanche hazards made difficult working conditions for many snow surveyors. Some scheduled surveys were not completed due to unpassable roads and bad weather that grounded helicopters and airplanes.

Snowpack

The February 1 statewide SNOTEL readings were much above average at 152%. The Sanpoil Basin snow surveys reported the lowest readings at 94% of average. The Omak Creek Basin reported the highest snowpack readings at 231% of average. Westside averages from SNOTEL combined with February 1 snow survey data, showed the North Puget Sound river basins with 140% of average, the Central Puget river basins with 158%, and the Olympic Peninsula basins with 172% of average. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 132% and the Wenatchee area with 137%. Snowpack in the Spokane River Basin was at 116% and the Pend Oreille River Basin, including Canadian data, had 119% of average. Maximum snow cover in Washington was at Paradise Park SNOTEL near Mount Rainer, with a water content of 59.3 inches. This site would normally have 38.5 inches of water content on February 1. Last year at this time Paradise Park had 45.1 inches of snow water equivalent. The highest average in the state was Moses Mountain #1 snow course in Okanogan County with 256% of average.

| BASIN | PERCENT OF LAST YEAR | PERCENT OF AVERAGE |
|-------------------------|----------------------|--------------------|
| Spokane | 140 | 116 |
| Newman Lake | 137 | 152 |
| Pend Oreille | 145 | 119 |
| Okanogan | 137 | 133 |
| Methow | 144 | 147 |
| Similkameen | 166 | 141 |
| Wenatchee | 127 | 139 |
| Chelan | 135 | 144 |
| Stemilt Creek | 130 | 128 |
| Yakima | 123 | 139 |
| Ahtanum Creek | 135 | 124 |
| Walla Walla | 166 | 143 |
| Lower Snake | 133 | 127 |
| Cowlitz | 145 | 158 |
| Lewis | 143 | 168 |
| White | 104 | 129 |
| Green | 122 | 110 |
| Puyallup | 104 | 129 |
| Cedar | 113 | 152 |
| Snoqualmie | 128 | 147 |
| Skykomish | 125 | 156 |
| Skagit | 140 | 145 |
| Baker | 129 | 143 |
| Nooksack | 153 | 133 |
| Olympic Peninsula | 163 | 172 |

Precipitation

During the month of January, the National Weather Service and Natural Resources Conservation Service climate stations showed well above average precipitation for all river basins in Washington. The highest percent of average in the state was at Sheep Canyon SNOTEL near Mt. St. Helens. Sheep Canyon reported 268% of average for a total of 46.3 inches. The average for this site is 17.3 inches for January. Averages for the water-year varied from 146% of average in the Central Puget Sound Basin to 115% of average in the Lower Snake river basins. The highest individual site average for the water-year was 234% of average at Thunder Basin SNOTEL site in the North Cascade Mountains.

| RIVER BASIN | JANUARY PERCENT OF AVERAGE | WATER YEAR PERCENT OF AVERAGE |
|-----------------------------|-------------------------------|----------------------------------|
| Spokane | 110 | 119 |
| Colville-Pend Oreille | 111 | 122 |
| Okanogan-Methow | 101 | 125 |
| Wenatchee-Chelan | 124 | 140 |
| Upper Yakima | 105 | 138 |
| Lower Yakima | 108 | 138 |
| Walla Walla | 128 | 146 |
| Lower Snake | 90 | 115 |
| Cowlitz-Lewis | 123 | 140 |
| White-Green-Puyallup | 110 | 130 |
| Central Puget Sound | 114 | 146 |
| North Puget Sound | 112 | 135 |
| Olympic Peninsula | 109 | 1135 |

Reservoir

Early season reservoir levels in Washington vary greatly due to specific watershed management practices. Reservoir storage in the Yakima Basin was 432,100 acre feet, or 84% of average for the upper reaches and 122,700 acre feet, 99% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 135% of average for February 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 123,500 acre feet, or 97% of average and 52% of capacity; Chelan Lake, 334,100 acre feet, 74% of average and 49% of capacity; and Ross Lake at 89% of average and 66% of capacity.

| BASIN | PERCENT OF CAPACITY | PERCENT OF AVERAGE |
|-----------------------------|---------------------|--------------------|
| Spokane | 52 | 97 |
| Colville-Pend Oreille | 66 | 90 |
| Okanogan-Methow | 79 | 135 |
| Wenatchee-Chelan | 49 | 74 |
| Upper Yakima | 52 | 82 |
| Lower Yakima | 53 | 99 |
| North Puget Sound | 66 | 89 |

Streamflow

Early season forecasts indicate above normal summer flows for most streams in the state. They vary from 161% of average for the Colville River at Kettle Falls to 104% of average for the Priest River near Priest River, ID. February forecasts for some Western Washington streams include: Cedar River near Cedar Falls, 122%; Green River, 110%; and the Skagit River, 118%. Some Eastern Washington streams include the Yakima River near Parker, 120%; the Wenatchee River at Peshastin, 126%; and the Spokane River near Post Falls, 118%. Volumetric forecasts are developed using current, historic, and average snowpack; and precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS.

Streamflows reported for January varied from well above to well below average. The South Fork Walla Walla River near Milton Freewater had the highest flows with 239% of average. The Similkameen River at Nighthawk with 65% of average, had the lowest in the state. Other streamflows were the following percentage of average: the Priest River, 99%; the Columbia at the International Boundary, 118%; the Spokane at Spokane, 147%; the Columbia below Rock Island Dam, 121%; the Cle Elum River near Roslyn, 169%; and the Snake River below Ice Harbor Dam, 130%.

BASIN

PERCENT OF AVERAGE MOST PROBABLE FORECAST (50 PERCENT CHANCE OF EXCEEDENCE)

| | |
|-----------------------------|---------|
| Spokane | 117-118 |
| Colville-Pend Oreille | 104-161 |
| Okanogan-Methow | 123-138 |
| Wenatchee-Chelan | 115-140 |
| Upper Yakima | 123-125 |
| Lower Yakima | 110-160 |
| Walla Walla | 114-149 |
| Lower Snake | 109-114 |
| Cowlitz-Lewis | 111-160 |
| White-Green-Puyallup | 110-112 |
| Central Puget Sound | 115-125 |
| North Puget Sound | 111-121 |
| Olympic Peninsula | 121-126 |

STREAM

PERCENT OF AVERAGE JANUARY STREAMFLOWS

| | |
|--|-----|
| Pend Oreille Below Box Canyon | 107 |
| Kettle at Laurier | 144 |
| Columbia at Birchbank | 118 |
| Spokane at Long Lake | 150 |
| Similkameen at Nighthawk | 65 |
| Okanogan at Tonasket | 127 |
| Methow at Pateros | 105 |
| Chelan at Chelan | 145 |
| Wenatchee at Pashastin | 154 |
| Yakima at Cle Elum | 159 |
| Yakima at Parker | 156 |
| Naches at Naches | 166 |
| Grande Ronde at Troy | 179 |
| Snake below Lower Granite Dam | 124 |
| SF Walla Walla near Milton Freewater | 239 |
| Lewis at Ariel | 124 |
| Cowlitz below Mayfield Dam | 136 |
| Skagit at Concrete | 118 |

For more information contact your local Natural Resources Conservation Service office.

BASIN SUMMARY OF SNOW COURSE DATA

FEBRUARY 1999

| SNOW COURSE | ELEVATION | DATE | SNOW DEPTH | WATER CONTENT | LAST YEAR | AVERAGE 1961-90 | DEPTH | CONTENT | YEAR | 1961-90 |
|----------------------|-----------|---------|------------|---------------|-----------|-----------------|-------|---------|------|---------|
| ABTANUM R.S. | 3100 | 2/01/99 | --- | 9.6E | 8.9 | 5.8 | | | | |
| ALPINE MEADOWS PILL | 3500 | 2/01/99 | --- | 37.5E | 33.5 | 16.0 | | | | |
| ASHLEY DIVIDE | 4820 | 1/26/99 | 22 | 4.7 | 4.0 | 5.0 | | | | |
| BADGER PASS PILL | 6900 | 2/01/99 | --- | 29.8 | 17.3 | 22.8 | | | | |
| BARKER LAKES PILL | 8250 | 2/01/99 | --- | 9.4 | 7.9 | 9.4 | | | | |
| BARNES CREEK CAN. | 4950 | 1/27/99 | 63 | 19.3 | --- | 13.4 | | | | |
| BASIN CREEK PILL | 7180 | 2/01/99 | --- | 6.2 | 6.3 | 5.0 | | | | |
| BASSOO PEAK | 5150 | 1/29/99 | 33 | 7.4 | 4.6 | --- | | | | |
| BEAVER CREEK TRAIL | 2200 | 2/01/99 | --- | 13.6E | 11.6 | 9.7 | | | | |
| BEAVER PASS | 3680 | 1/29/99 | 90 | 28.7 | 21.3 | 19.7 | | | | |
| BERNE-MILL CREEK (d) | 3170 | 2/01/99 | 91 | 26.5 | 19.4 | 19.9 | | | | |
| BIG WHITE MTN CAN. | 5100 | 1/31/99 | 57 | 17.6 | 13.3 | 12.5 | | | | |
| BLACK PINE PILL | 7100 | 2/01/99 | --- | 9.3 | 5.7 | 8.0 | | | | |
| BLACKWALL PEAK CAN. | 6370 | 2/01/99 | --- | 35.6 | 20.5 | 23.8 | | | | |
| BLEWETT PASS#2PILL | 4270 | 2/01/99 | --- | 11.8 | 11.6 | 13.6 | | | | |
| BRENDA MINE CAN. | 4450 | 2/01/99 | --- | 12.5 | 8.3 | 8.9 | | | | |
| BRIEF | 1600 | 1/26/99 | 24 | 7.0 | 7.1 | 6.0 | | | | |
| BUMPING LAKE (NEW) | 3400 | 1/28/99 | 71 | 16.9 | 14.9 | 14.2 | | | | |
| BUMPING RIDGE PILL | 4600 | 2/01/99 | --- | 32.3 | 21.7 | 13.9 | | | | |
| BUNCEGRASS MDWPILL | 5000 | 2/01/99 | --- | 28.3 | 19.6 | 18.8 | | | | |
| CAYUSE PASS | 5300 | 1/25/99 | 198 | 47.6 | 60.8 | 52.9 | | | | |
| CHESMAN RESERVOIR | 6200 | 1/27/99 | 12 | 2.6 | 1.5 | 2.7 | | | | |
| CHICKEN CREEK | 4060 | 1/26/99 | 54 | 14.6 | 9.9 | 10.9 | | | | |
| CHITWAUKUM G.S. | 2500 | 2/01/99 | 42 | 12.8 | 10.4 | 8.7 | | | | |
| COLOCUM PASS | 5370 | 1/28/99 | 59 | 15.4 | 11.3 | 11.5 | | | | |
| COMBINATION PILL | 5600 | 2/01/99 | --- | 4.1 | 3.2 | 3.8 | | | | |
| COPPER BOTTON PILL | 5200 | 2/01/99 | --- | 10.8 | 4.7 | 7.4 | | | | |
| COPPER MOUNTAIN | 7700 | 1/26/99 | 34 | 8.8 | 7.1 | 7.0 | | | | |
| CORRAL PASS PILL | 6000 | 2/01/99 | --- | 31.0 | 24.5 | 21.3 | | | | |
| COUGAR MTN. PILL | 3200 | 2/01/99 | --- | 15.1 | 13.1 | 15.0 | | | | |
| COX VALLEY | 4500 | 1/30/99 | 137 | 38.0 | 27.9 | 24.9 | | | | |
| COYOTE HILL | 4200 | 1/29/99 | 32 | 8.9 | 6.5 | 7.5 | | | | |
| DALY CREEK PILL | 5780 | 2/01/99 | --- | 9.3 | 7.3 | 7.8 | | | | |
| DEER PARK | 5200 | 1/27/99 | 62 | 22.1 | 12.2 | 13.5 | | | | |
| DISCOVERY BASIN | 7050 | 1/26/99 | 32 | 7.4 | 6.2 | 6.8 | | | | |
| DIX HILL | 6400 | 1/31/99 | 29 | 8.6 | 6.6 | 8.2 | | | | |
| DOMMERIE FLATS | 2200 | 1/28/99 | 34 | 6.2 | 7.3 | 7.0 | | | | |
| EAST RAGGED SADDLE | 3740 | 1/30/99 | 62 | 18.0 | 15.0 | 15.0 | | | | |
| ELBOW LAKE PILL | 3200 | 2/01/99 | 102 | 36.3 | 22.7 | 23.4 | | | | |
| EMERY CREEK PILL | 4350 | 2/01/99 | --- | 11.2 | 7.7 | 10.9 | | | | |
| ENDERBY CAN. | 5800 | 1/31/99 | 109 | 36.6 | 26.8 | 25.2 | | | | |
| FARRON CAN. | 3700 | 1/29/99 | 35 | 9.8 | 8.7 | 9.3 | | | | |
| FISH CREEK | 8000 | 1/27/99 | 30 | 8.3 | 8.0 | 6.4 | | | | |
| FISH LAKE | 3370 | 2/02/99 | 118 | 40.0 | 26.6 | 21.1 | | | | |
| FISH LAKE PILL | 3370 | 2/01/99 | --- | 34.1 | 24.8 | 22.0 | | | | |
| FLATTOP MTN PILL | 6300 | 2/01/99 | --- | 42.5 | 26.9 | 32.3 | | | | |
| FOURTH OF JULY SUM | 3200 | 1/28/99 | 33 | 8.4 | 7.8 | 7.2 | | | | |
| FREEZEOUT CK. TRAIL | 3500 | 1/29/99 | 52 | 13.1 | 9.6 | 8.8 | | | | |
| FROHNER MDWS PILL | 6480 | 2/01/99 | --- | 5.3 | 3.9 | 5.6 | | | | |
| GOAT CREEK | 3600 | 1/28/99 | 25 | 5.5 | 5.0 | 5.2 | | | | |
| GRASS MOUNTAIN #2 | 2900 | 2/01/99 | --- | 11.5E | 3.4 | 10.3 | | | | |
| GRAVE CRK PILL | 4300 | 2/01/99 | --- | 11.8 | 10.9 | 11.9 | | | | |
| GREEN LAKE PILL | 6000 | 2/01/99 | 75 | 22.2 | 14.7 | 14.1 | | | | |
| GRIFFIN CR DIVIDE | 5150 | 1/29/99 | 36 | 9.4 | 4.0 | --- | | | | |
| GROUSE CAMP PILL | 5380 | 2/01/99 | --- | 20.6 | 11.5 | 13.8 | | | | |
| HARD CREEK PILL | 5030 | 2/01/99 | --- | 9.1 | 6.4 | 8.3 | | | | |
| HARTS PASS PILL | 6500 | 2/01/99 | --- | 39.6E | 28.4 | 27.7 | | | | |
| HELL ROARING DIVIDE | 5770 | 1/29/99 | 78 | 23.2 | 14.0 | 20.5 | | | | |
| HERRIG JUNCTION | 4850 | 1/27/99 | 72 | 20.9 | 15.5 | 16.7 | | | | |
| HIGH RIDGE PILL | 4980 | 2/01/99 | --- | 19.7 | 13.7 | 16.0 | | | | |
| HOLBROOK | 4530 | 1/29/99 | 29 | 7.1 | 4.6 | 7.2 | | | | |
| HOOODOO BASIN PILL | 6050 | 2/01/99 | --- | 39.2 | 23.6 | 31.0 | | | | |
| HUMBOLDT GLCH PILL | 4250 | 2/01/99 | --- | 12.5 | 7.5 | 9.7 | | | | |
| HURRICANE | 4500 | 2/01/99 | --- | 21.9E | 11.1 | 13.7 | | | | |
| INTERGAARD | 6450 | 1/28/99 | 21 | 5.5 | 5.2 | 5.2 | | | | |
| ISINTOK LAKE CAN. | 5100 | 1/28/99 | 28 | 6.2 | 3.3 | 5.2 | | | | |
| JUNE LAKE PILL | 3200 | 2/01/99 | --- | 41.3 | 25.5 | 28.1 | | | | |
| KELLER RIDGE | 3700 | 1/29/99 | 21 | 4.5 | 5.2 | 4.5 | | | | |
| KELLOGG PEAK | 5560 | 1/29/99 | 95 | 30.6 | 19.8 | --- | | | | |
| KRAFT CREEK PILL | 4750 | 2/01/99 | --- | 10.3 | 8.5 | 11.4 | | | | |
| LESTER CREEK | 3100 | 2/01/99 | --- | 16.3E | 14.6 | 14.8 | | | | |
| LOLO PASS PILL | 5240 | 2/01/99 | --- | 30.3 | 15.9 | 21.1 | | | | |
| LONE PINE PILL | 3800 | 2/01/99 | --- | 45.3 | 28.1 | 20.8 | | | | |
| LOOKOUT PILL | 5140 | 2/01/99 | --- | 27.5 | 19.2 | 22.3 | | | | |
| LOST HORSE MTN CAN. | 5850 | 1/27/99 | 31 | 7.1 | 5.1 | 6.3 | | | | |
| LOST HORSE PILL | 5000 | 2/01/99 | --- | 20.8 | 15.4 | 22.4 | | | | |
| LOST LAKE PILL | 6110 | 2/01/99 | --- | 46.9 | 31.1 | 41.2 | | | | |
| LUBRECHT FOREST NO 3 | 5450 | 1/29/99 | 20 | 4.7 | 2.4 | 5.0 | | | | |
| LUBRECHT FOREST NO 4 | 4650 | 1/29/99 | 8 | 1.8 | 1.4 | 2.7 | | | | |
| LUBRECHT FOREST NO 6 | 4040 | 1/29/99 | 8 | 2.0 | 1.2 | 3.2 | | | | |
| LUBRECHT HYDROPLT | 4200 | 1/29/99 | 17 | 4.6 | 2.8 | 5.4 | | | | |
| LUBRECHT PILL | 4680 | 2/01/99 | --- | 3.7 | 3.8 | 4.5 | | | | |
| LYMAN LAKE PILL | 5900 | 2/01/99 | --- | 59.0 | 46.0 | 39.0 | | | | |
| LYNN LAKE | 4000 | 2/01/99 | --- | 15.9E | 13.7 | 14.8 | | | | |
| MARIAS PASS | 5250 | 1/29/99 | 53 | 16.4 | 9.8 | 11.2 | | | | |
| MCCULLOCH CAN. | 3900 | 1/28/99 | 23 | 5.1 | 5.6 | 4.7 | | | | |
| MEADOWS PASS PILL | 3240 | 2/01/99 | --- | 21.0 | 18.1 | 16.2 | | | | |
| MERRITT | 2140 | 2/01/99 | 58 | 16.8 | 12.1 | 12.4 | | | | |
| MICA CREEK PILL | 4750 | 2/01/99 | --- | 23.5 | 13.8 | --- | | | | |
| MISSION CREEK CAN. | 5800 | 2/01/99 | 57 | 19.5 | 11.7 | 13.3 | | | | |
| MISSION RIDGE | 5000 | 1/27/99 | 53 | 16.4 | 12.6 | 11.5 | | | | |
| MONASHEE PASS CAN. | 4200 | 1/27/99 | 41 | 11.5 | 9.1 | 9.3 | | | | |
| MOOSE CREEK PILL | 6200 | 2/01/99 | --- | 14.8 | 10.1 | 11.6 | | | | |
| MORRISSEY RIDGE CAN. | 6100 | 2/01/99 | --- | 24.1 | 16.4 | 19.4 | | | | |
| MORSE LAKE PILL | 5400 | 2/01/99 | --- | 55.0 | 43.4 | 29.6 | | | | |
| MOSES MOUNTAIN (1) | 4800 | 1/26/99 | 78 | 24.1 | 15.9 | 9.4 | | | | |
| MOSES MTN PILL | 4800 | 2/01/99 | --- | 20.6 | 9.0 | 10.0 | | | | |
| MOSES PEAK (2) | 6650 | 1/25/99 | 50 | 15.0 | 9.7 | 6.5 | | | | |
| MOSQUITO RDG PILL | 5200 | 2/01/99 | --- | 34.2 | 20.1 | 25.2 | | | | |
| MOULTON RESERVOIR | 6850 | 1/27/99 | 25 | 5.9 | 4.3 | 4.9 | | | | |
| MOUNT CRAG PILL | 4050 | 2/01/99 | --- | 37.0 | 21.6 | 16.9 | | | | |
| MT. KOBAY CAN. | 5500 | 1/30/99 | 38 | 9.9 | 6.8 | 8.5 | | | | |
| MOUNT TOLMAN | 2000 | 1/28/99 | 15 | 3.7 | 4.0 | 3.1 | | | | |
| MOUNT GARDNER PILL | 2860 | 2/01/99 | --- | 16.9 | 13.6 | 9.6 | | | | |
| MUTTON CREEK #1 | 5700 | 1/27/99 | 47 | 12.9 | 7.7 | 9.2 | | | | |
| N.F. ELK CR PILL | 6250 | 2/01/99 | --- | 9.1 | 5.8 | 8.1 | | | | |
| NEVADA CREEK PILL | 6480 | 2/01/99 | --- | 13.0 | 7.9 | 8.6 | | | | |
| NEW HOZOMKEN LAKE | 2800 | 2/01/99 | --- | 11.2E | 8.2 | 8.0 | | | | |
| NEZ PERCE CMP PILL | 5650 | 2/01/99 | --- | 11.4 | 9.0 | 9.8 | | | | |
| NOISY BASIN PILL | 6040 | 2/01/99 | --- | 28.9 | 22.3 | 26.2 | | | | |
| OLALLIE MDWS PILL | 3960 | 2/01/99 | --- | 49.4 | 37.8 | 34.3 | | | | |
| OLALLIE MEADOWS | 3630 | 2/03/99 | 110 | 41.9 | 28.0 | 29.3 | | | | |
| OPHIR PARK | 7150 | 1/31/99 | 42 | 12.9 | 8.0 | 11.2 | | | | |
| PARADISE PARK PILL | 5500 | 2/01/99 | --- | 59.3 | 45.1 | 38.5 | | | | |
| PARK CR RIDGE PILL | 4600 | 2/01/99 | --- | 45.5 | 33.3 | 29.6 | | | | |
| PETERSON MDW PILL | 7200 | 2/01/99 | --- | 6.4 | 6.2 | 6.5 | | | | |
| PIGTAIL PEAK PILL | 5900 | 2/01/99 | 138 | 48.8 | 32.4 | 30.4 | | | | |
| PIPE CREEK PILL | 5930 | 2/01/99 | --- | 24.0 | 13.4 | 17.1 | | | | |
| PIPESTONE PASS | 7200 | 1/28/99 | 19 | 5.2 | 3.0 | 3.3 | | | | |
| POPE RIDGE PILL | 3540 | 2/01/99 | 69 | 18.4 | 14.3 | 13.9 | | | | |
| POTILL LAKE CAN. | 4200 | 1/29/99 | 27 | 7.9 | 5.6 | 5.5 | | | | |
| POTATO HILL PILL | 4500 | 2/01/99 | --- | 27.7 | 21.9 | 16.4 | | | | |
| QUARTZ PEAK PILL | 4700 | 2/01/99 | --- | 21.2 | 14.7 | 14.0 | | | | |
| ROUND TOP MTN | 4020 | 2/01/99 | 45 | 12.9 | 11.7 | --- | | | | |
| RAGGED RIDGE | 3330 | 2/01/99 | 35 | 9.5 | 7.7 | 6.2 | | | | |
| RAINY PASS PILL | 4780 | 2/01/99 | --- | 40.1 | 24.9 | 24.5 | | | | |
| REX RIVER PILL | 1900 | 2/01/99 | 77 | 25.7 | 21.4 | --- | | | | |
| ROCKER PEAK PILL | 8000 | 2/01/99 | --- | 9.1 | 8.8 | --- | | | | |
| RUSTY CREEK | 4000 | 1/27/99 | 24 | 4.4 | 5.2 | 5.0 | | | | |
| SADDLE MTN PILL | 7900 | 2/01/99 | --- | 21.3 | 15.7 | 17.0 | | | | |
| SALMON MDWS PILL | 4500 | 2/01/99 | --- | 9.2 | 7.5 | 5.9 | | | | |
| SASSE RIDGE PILL | 4200 | 2/01/99 | --- | 33.4 | 23.4 | 21.6 | | | | |
| SAVAGE PASS PILL | 6170 | 2/01/99 | --- | 23.4 | 15.3 | 17.4 | | | | |
| SCHREIBERS MDW AM | 3400 | 2/01/99 | --- | 52.0E | 40.0 | 35.1 | | | | |
| SHEEP CANYON PILL | 4050 | 2/01/99 | --- | 77.4 | 23.5 | 25.2 | | | | |
| SILVER STAR MTN CAN. | 5600 | 1/30/99 | 76 | 25.2 | 18.1 | 18.9 | | | | |
| SKALKOHO PILL | 7260 | 2/01/99 | --- | 19.6 | 14.5 | 15.8 | | | | |
| SKOOKUM CREEK PILL | 3920 | 2/01/99 | --- | 25.8 | 18.9 | 19.3 | | | | |
| SPENCER MDW PILL | 3400 | 2/01/99 | --- | 36.4 | 26.6 | 20.0 | | | | |
| SPIRIT LAKE PILL | 3100 | 2/01/99 | --- | 13.3E | 3.3 | 6.4 | | | | |
| SPOTTED BEAR MTN. | 7000 | 1/30/99 | 37 | 10.0 | 6.8 | 10.3 | | | | |
| STARL PEAK PILL | 6030 | 2/01/99 | --- | 28.5 | 22.2 | 23.5 | | | | |
| STAMPEDE PASS PILL | 3860 | 2/01/99 | --- | 32.6 | 28.5 | 28.8 | | | | |
| STEMILT SLIDE | 5000 | 1/29/99 | 48 | 14.8 | 9.9 | 10.3 | | | | |



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Washington State
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Helpful Internet Addresses

NRCS Snow Survey and Climate Services Homepages

Washington:

<http://www.wa.nrcs.usda.gov/nrcs/CoopSnoSrvy.htm>

Oregon:

<http://crystal.or.nrcs.usda.gov/snowsveys>

Idaho:

<http://idsnow.id.nrcs.usda.gov>

National Water and Climate Center (NWCC):

<http://www.wcc.nrcs.usda.gov>

NWCC Anonymous FTP Server:

<ftp.wcc.nrcs.usda.gov>

USDA-NRCS Agency Homepages

Washington:

<http://www.wa.nrcs.usda.gov/nrcs>

NRCS National:

<http://www.ftw.nrcs.usda.gov>



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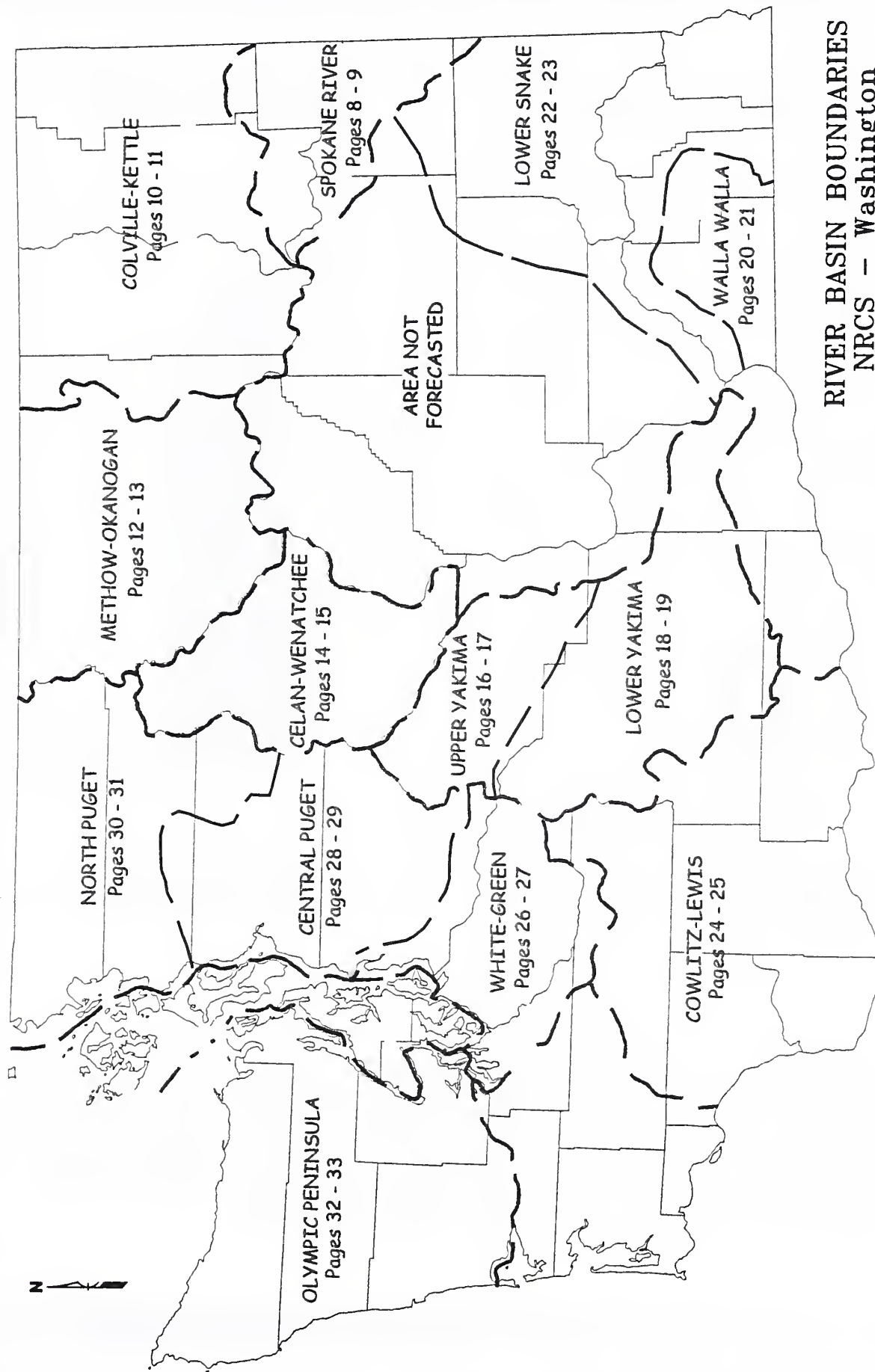
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Data Collection Offices

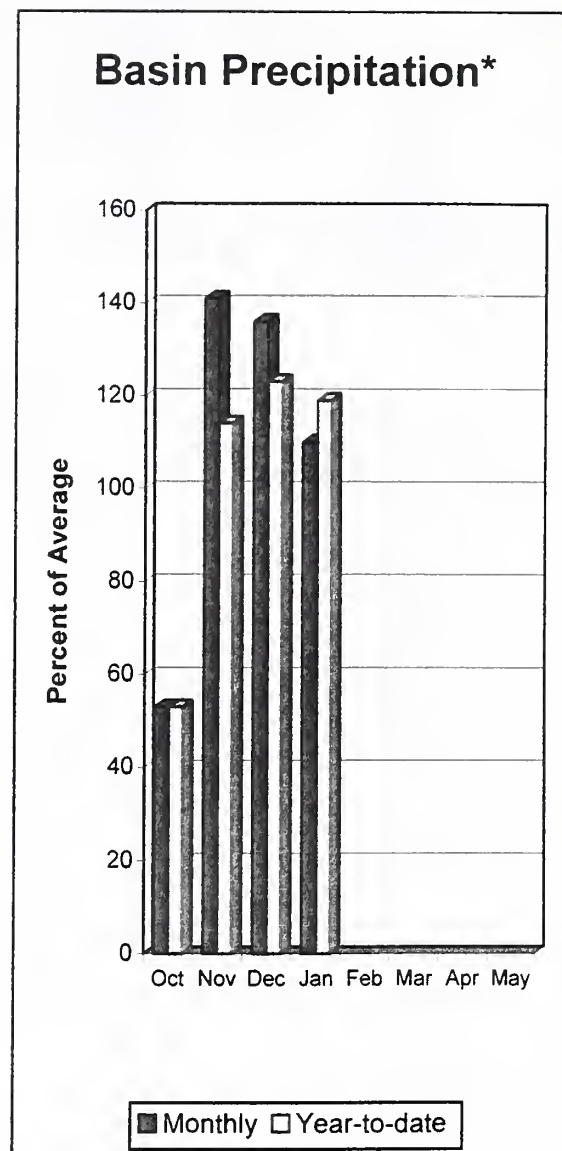
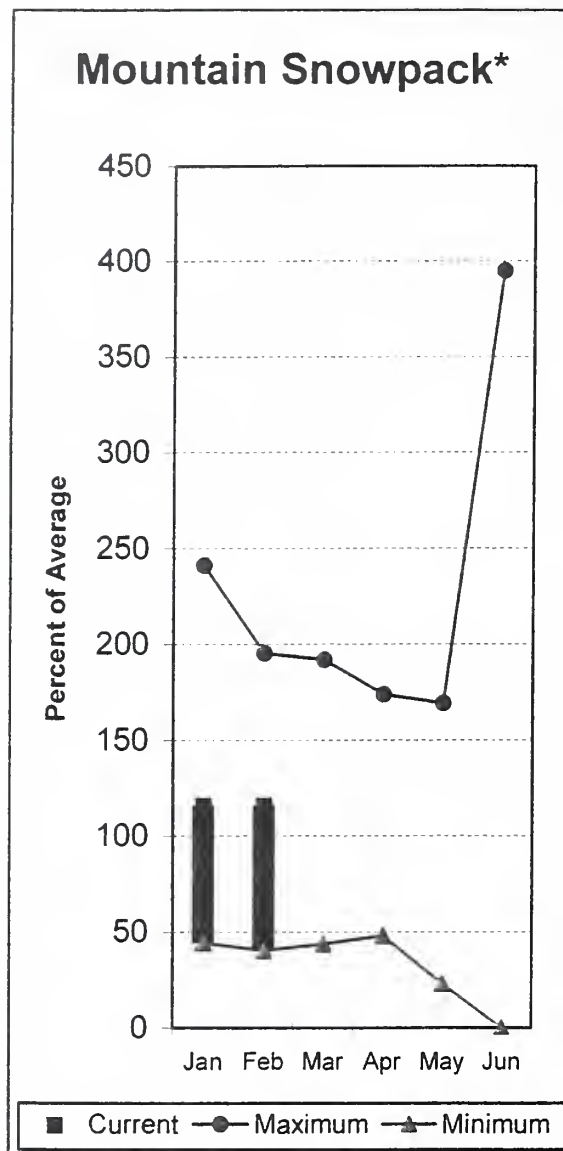
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RIVER BASIN BOUNDARIES
NRCS - Washington
1999

Spokane River Basin



*Based on selected stations

The February 1 forecasts for summer runoff within the Spokane River Basin are 118% of average near Post Falls and 117% of average at Long Lake. The forecast is based on a basin snowpack that is 116% of average and precipitation that is 119% of average for the water-year. Precipitation for January was above normal at 110% of average. Streamflow for the Spokane River at Long Lake, was 150% of average for January. February 1 storage in Coeur d'Alene Lake, was 123,500 acre feet, 97% of average and 52% of capacity. Snowpack at Quartz Peak SNOTEL site contained 21.2 inches of water, compared to the average February 1 reading of 14.0 inches. Average temperatures in the Spokane Basin were about 6 degrees above normal.

For more information contact your local Natural Resources Conservation Service office.

Spokane River Basin

Streamflow Forecasts - February 1, 1999

| | | | | | | | | | | |
|-----------------------------|---------|------|------|--|------|-----|--|------|------|------|
| SPOKANE near Post Falls (2) | APR-SEP | 2551 | 2943 | | 3210 | 118 | | 3477 | 3869 | 2730 |
| | APR-JUL | 2497 | 2884 | | 3147 | 120 | | 3410 | 3797 | 2633 |
| SPOKANE at Long Lake | APR-JUL | 2757 | 3171 | | 3452 | 118 | | 3733 | 4147 | 2936 |
| | APR-SEP | 2975 | 3403 | | 3694 | 117 | | 3985 | 4413 | 3159 |

SPOKANE RIVER BASIN Reservoir Storage (1000 AF) - End of January

SPOKANE RIVER BASIN Watershed Snowpack Analysis - February 1, 1999

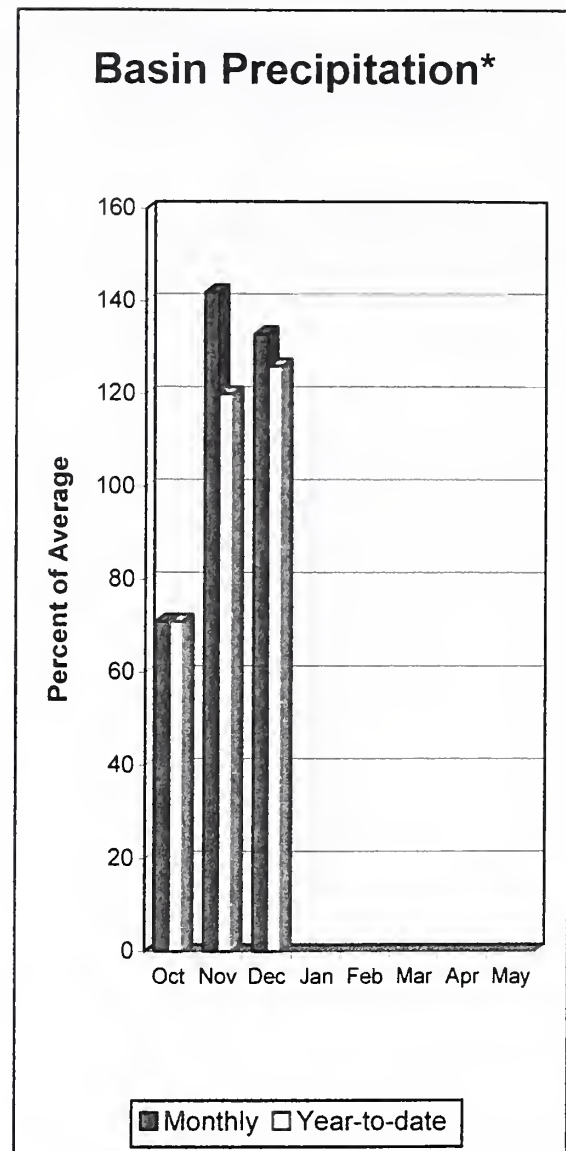
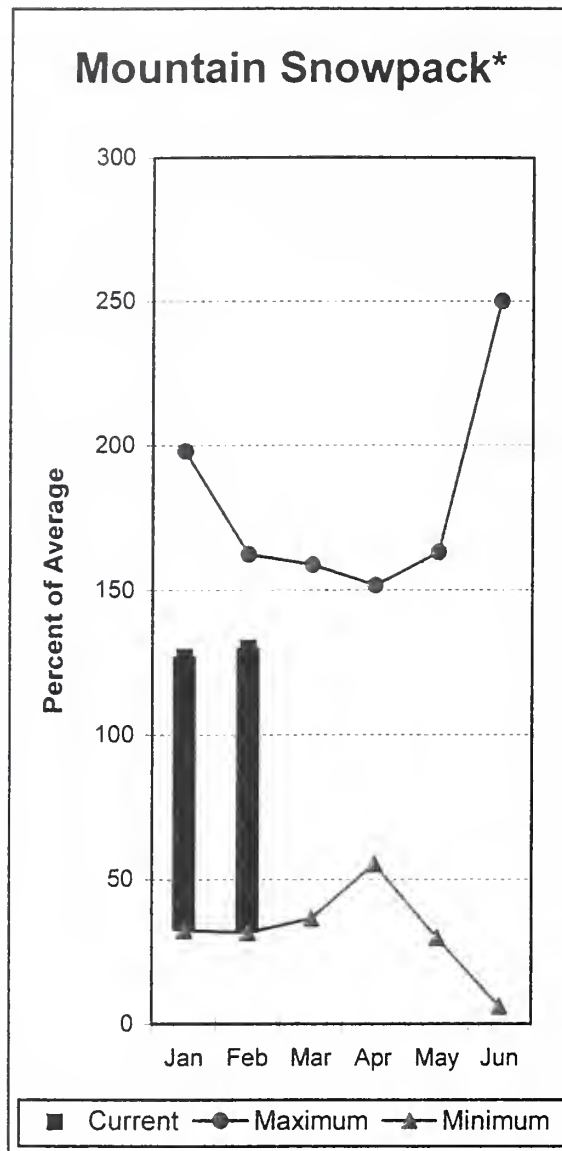
| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | Number of Data Sites | This Year as % of | |
|---------------|--------------------|------------------------|--------------|-------|---------------|----------------------------|-------------------|---------|
| | | This Year | Last Year | Avg | | | Last Yr | Average |
| COEUR D'ALENE | 238.5 | 123.5 | 104.5 | 127.8 | SPOKANE RIVER | 11 | 140 | 116 |
| | | | | | NEWMAN LAKE | 2 | 137 | 152 |

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural flow - actual flow may be affected by upstream water management.

Colville - Pend Oreille River Basins



*Based on selected stations

The April - September forecast for the Kettle River streamflow is 128% of average; the Pend Oreille below Box Canyon, 108%; and the Priest River near the town of Priest River, 104% of average. January streamflow was 107% of average on the Pend Oreille River; 118% on the Columbia at the International Boundary; and 144% on the Kettle River. February 1 snow cover was 119% of average in the Pend Oreille Basin and 123% of average in the Kettle River Basin. Precipitation during January was 111% of average, bringing the year-to-date precipitation to 122% of average. Reservoir storage in Roosevelt and Banks lakes was 90% of the February 1 average and 66% of capacity. Average temperatures were about 6 degrees above normal.

For more information contact your local Natural Resources Conservation Service office.

Colville - Pend Oreille River Basins

Streamflow Forecasts - February 1, 1999

| | | <<===== Drier ===== Future Conditions ===== Wetter =====>> | | | | | | | |
|-----------------------------------|-----------------|--|-----------------|---------------------------------|----------|-----------------------|-----------------|------------|--|
| Forecast Point | Forecast Period | Chance Of Exceeding * | | Chance Of Exceeding * | | Chance Of Exceeding * | | 30-Yr Avg. | |
| | | 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | (1000AF) | |
| PEND OREILLE Lake Inflow (1,2) | APR-JUL | 10478 | 13106 | 14300 | 109 | 15494 | 18122 | 13150 | |
| | APR-SEP | 11420 | 14295 | 15600 | 109 | 16905 | 19780 | 14370 | |
| | APR-JUN | 8792 | 11273 | 12400 | 109 | 13527 | 16008 | 11390 | |
| PRIEST nr Priest River (1,2) | APR-JUL | 577 | 765 | 850 | 104 | 935 | 1123 | 814 | |
| | APR-SEP | 613 | 814 | 905 | 104 | 996 | 1197 | 868 | |
| PEND OREILLE b1 Box Canyon (1,2) | APR-JUL | 11025 | 13415 | 14500 | 108 | 15585 | 17975 | 13380 | |
| | APR-SEP | 12007 | 14615 | 15800 | 108 | 16985 | 19593 | 14590 | |
| | APR-JUN | 9510 | 11566 | 12500 | 108 | 13434 | 15490 | 11570 | |
| COLVILLE at Kettle Falls | APR-SEP | 170 | 194 | 211 | 161 | 228 | 252 | 131 | |
| | APR-JUL | 157 | 180 | 196 | 163 | 212 | 235 | 120 | |
| | APR-JUN | 146 | 168 | 183 | 165 | 198 | 220 | 111 | |
| KETTLE near Laurier | APR-SEP | 2005 | 2222 | 2370 | 128 | 2518 | 2735 | 1854 | |
| | APR-JUL | 1918 | 2115 | 2250 | 128 | 2385 | 2582 | 1761 | |
| | APR-JUN | 1695 | 1865 | 1981 | 125 | 2097 | 2267 | 1585 | |
| COLUMBIA at Birchbank (1,2) | APR-JUL | 33417 | 37394 | 39200 | 112 | 41006 | 44983 | 35140 | |
| | APR-SEP | 41656 | 46637 | 48900 | 112 | 51163 | 56144 | 43810 | |
| | APR-JUN | 24564 | 27442 | 28750 | 112 | 30058 | 32936 | 25670 | |
| COLUMBIA at Grand Coulee Dm (1,2) | APR-SEP | 60634 | 69207 | 73100 | 113 | 76993 | 85566 | 64850 | |
| | APR-JUL | 51046 | 58235 | 61500 | 113 | 64765 | 71954 | 54543 | |
| | APR-JUN | 40156 | 45757 | 48300 | 113 | 50843 | 56444 | 42756 | |

COLVILLE - PEND OREILLE RIVER BASINS Reservoir Storage (1000 AF) - End of January

| Reservoir | Usable Capacity | *** Usable Storage *** | | |
|-----------|-----------------|------------------------|-----------|-----|
| | | This Year | Last Year | Avg |
| ROOSEVELT | | NO REPORT | | |
| BANKS | | NO REPORT | | |

COLVILLE - PEND OREILLE RIVER BASINS Watershed Snowpack Analysis - February 1, 1999

| Watershed | Number of Data Sites | This Year as % of | |
|--------------------|----------------------|-------------------|---------|
| | | Last Yr | Average |
| COLVILLE RIVER | 1 | 146 | 147 |
| PEND OREILLE RIVER | 68 | 145 | 119 |
| KETTLE RIVER | 5 | 124 | 123 |

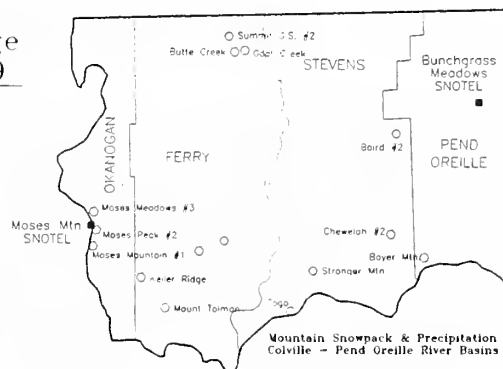
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

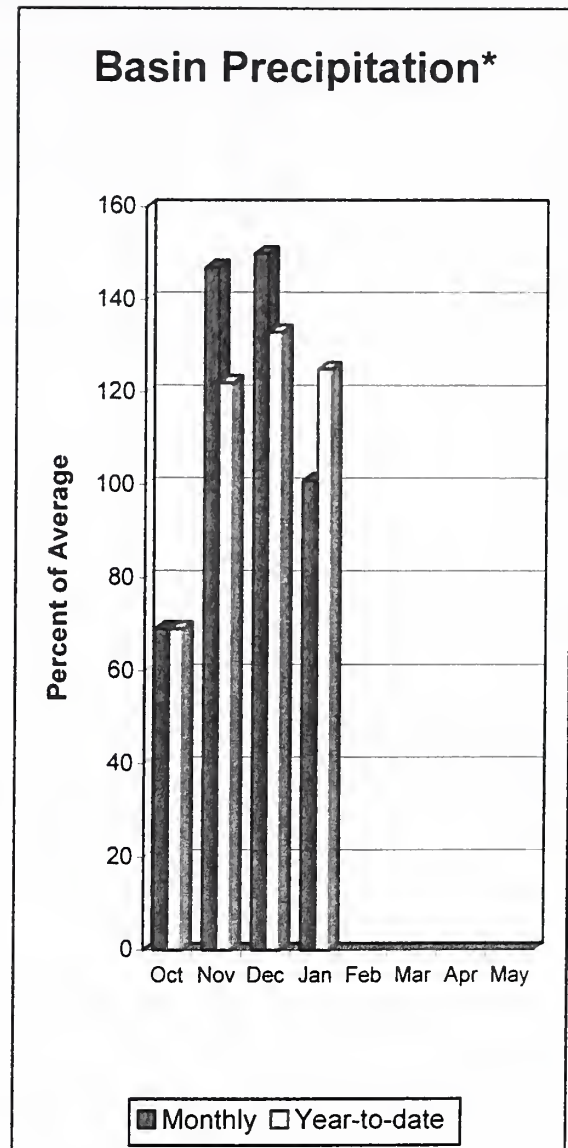
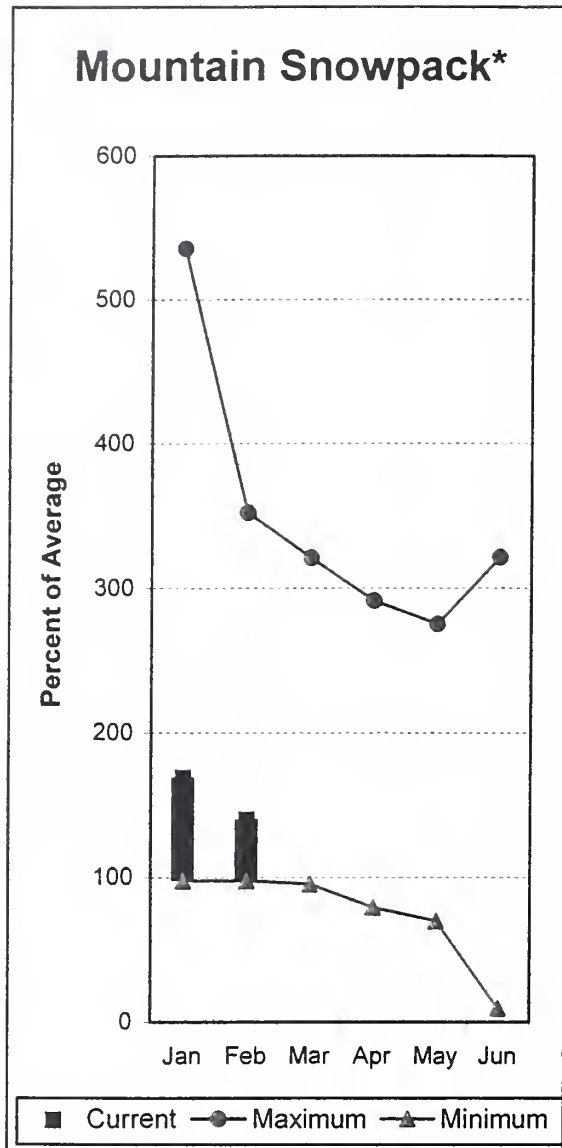
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

Percent of Average February 1, 1999

Snowpack - 130%
 Precipitation - 122%
 Reservoir - 90%



Okanogan - Methow River Basins



*Based on selected stations

Summer runoff forecast for the Okanogan River is 124% of average; the Similkameen River, 124%; the Methow River, 138%; and Salmon Creek, 123% of average. February 1 snow cover on the Okanogan was 133% of average; the Methow, 147%; and the Similkameen River, 141%. Moses Mountain SNOTEL site had a February 1 reading of 206% of average. January precipitation in the Okanogan-Methow was 101% of average, with precipitation for the water-year at 125% of average. January streamflow for the Methow River was 105% of average; 127% for the Okanogan River; and 65% for the Similkameen. Snow-water-content at the Salmon Meadows SNOTEL, near Conconully, was 9.2 inches. Average for this site is 5.9 inches on February 1. Combined storage in the Conconully Reservoirs was 18,600 acre feet, which is 79% of capacity and 135% of the February 1 average. Temperatures were 8-9 degrees above normal for the past month.

For more information contact your local Natural Resources Conservation Service office.

Okanogan - Methow River Basins

Streamflow Forecasts - February 1, 1999

| | | <<===== Drier ===== Future Conditions ===== Wetter =====>> | | | | | | |
|--------------------------------|-----------------|--|-----------------|--|-----|-----------------|-----------------|------------------------|
| Forecast Point | Forecast Period | Chance Of Exceeding * | | | | | | 30-Yr Avg. (1000AF) |
| | | 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) (% AVG.) | | 30% (1000AF) | 10% (1000AF) | |
| ===== | | | | | | | | |
| SIMILKAMEEN near Nighthawk (1) | APR-JUL | 1292 | 1515 | 1617 | 124 | 1719 | 1942 | 1304 |
| | APR-SEP | 1410 | 1630 | 1730 | 124 | 1830 | 2050 | 1399 |
| | APR-JUN | 1072 | 1284 | 1380 | 124 | 1476 | 1688 | 1113 |
| ===== | | | | | | | | |
| OKANOGAN near Tonasket (1) | APR-JUL | 1125 | 1610 | 1830 | 125 | 2050 | 2535 | 1466 |
| | APR-SEP | 1245 | 1771 | 2010 | 124 | 2249 | 2775 | 1623 |
| | APR-JUN | 957 | 1358 | 1540 | 125 | 1722 | 2123 | 1233 |
| ===== | | | | | | | | |
| SALMON CREEK near Conconully | APR-JUL | 11.2 | 18.5 | 24 | 123 | 29 | 36 | 19.1 |
| | APR-SEP | 12.1 | 19.5 | 25 | 123 | 30 | 37 | 20 |
| ===== | | | | | | | | |
| METHOW RIVER near Pateros | APR-SEP | 1110 | 1223 | 1300 | 138 | 1377 | 1490 | 942 |
| | APR-JUL | 1051 | 1153 | 1222 | 140 | 1291 | 1393 | 873 |
| | APR-JUN | 937 | 1027 | 1088 | 146 | 1149 | 1239 | 746 |

OKANOGAN - METHOW RIVER BASINS Reservoir Storage (1000 AF) - End of January

OKANOGAN - METHOW RIVER BASINS Watershed Snowpack Analysis - February 1, 1999

| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | Number of Data Sites | This Year as % of | |
|----------------------|-----------------|------------------------|-----------|-----|--------------------|----------------------|-------------------|---------|
| | | This Year | Last Year | Avg | | | Last Yr | Average |
| SALMON LAKE | 10.5 | 8.1 | 8.7 | 7.5 | OKANOGAN RIVER | 19 | 137 | 133 |
| CONCONULLY RESERVOIR | 13.0 | 10.5 | 10.8 | 6.3 | OMAK CREEK | 3 | 173 | 231 |
| | | | | | SANPOIL RIVER | 3 | 82 | 94 |
| | | | | | SIMILKAMEEN RIVER | 3 | 166 | 141 |
| | | | | | TOATS COULEE CREEK | 1 | 167 | 103 |
| | | | | | CONCONULLY LAKE | 3 | 130 | 132 |
| | | | | | METHOW RIVER | 5 | 144 | 147 |

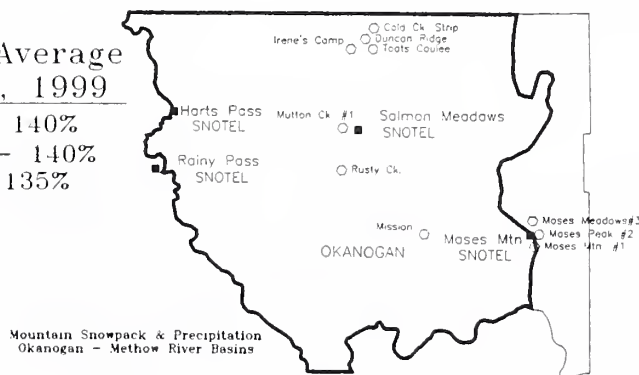
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

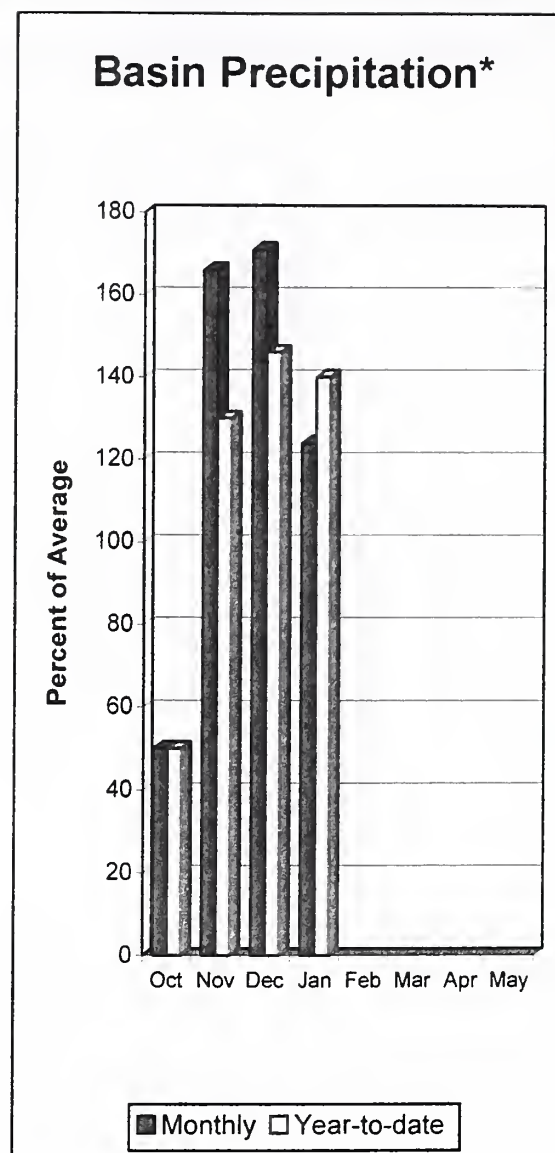
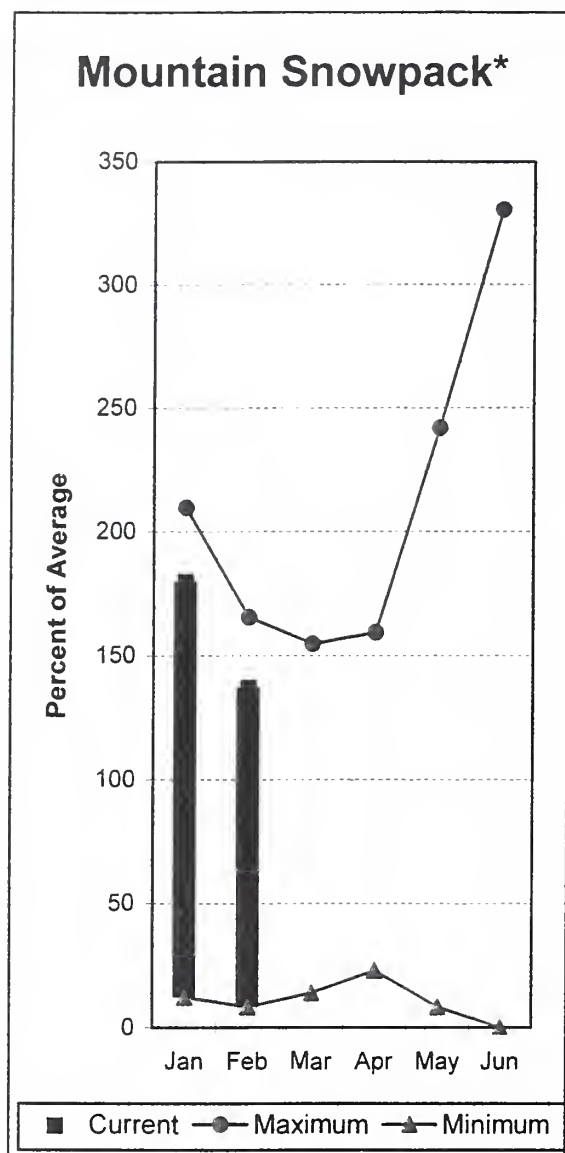
Percent of Average February 1, 1999

Snowpack - 140%
 Precipitation - 140%
 Reservoir - 135%



Mountain Snowpack & Precipitation
 Okanogan - Methow River Basins

Wenatchee - Chelan River Basins



*Based on selected stations

Precipitation during January was 124% of average in the combined basin and 140% for the year-to-date. Runoff for the Entiat River is forecast to be 140% of average for the summer. The April-September forecast for the Chelan River is for 124% of average; it is 126% for the Wenatchee River at Plain; and for the Stehekin it is 127% of average. Icicle, Stemilt and Squilchuck creeks are all expected to be much the same this summer. January streamflows on the Chelan River were 145% of average. The Wenatchee River averaged 154% of normal flows. February 1 snowpack in the Wenatchee Basin was 139% of average. The Chelan Basin was 144% of average; Colockum Ridge was 146%; and Stemilt Creek was 128% of average. Snowpack in the Entiat River Basin was 128% of average. Reservoir storage in Lake Chelan was 334,100 acre feet, or 74% of February 1 average and 49% of capacity. Lyman Lake SNOTEL had the most snow water equivalent with 59 inches of water. This site would normally have 39 inches on February 1. Temperatures were 5-8 degrees above normal for January.

For more information contact your local Natural Resources Conservation Service office.

Wenatchee - Chelan River Basins

Streamflow Forecasts - February 1, 1999

| | | <<===== Drier ===== | | Future Conditions ===== | | Wetter =====>> | | |
|------------------------------------|-----------------|-----------------------|-----------------|---------------------------------|----------|-----------------|-----------------|------------------------|
| Forecast Point | Forecast Period | Chance Of Exceeding * | | | | | | 30-Yr Avg. (1000AF) |
| | | 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | |
| ===== | | | | | | | | |
| CHELAN RIVER near Chelan | APR-SEP | 1266 | 1372 | 1443 | 124 | 1514 | 1620 | 1160 |
| | APR-JUL | 1124 | 1213 | 1273 | 124 | 1333 | 1422 | 1024 |
| | APR-JUN | 880 | 956 | 1007 | 124 | 1058 | 1134 | 812 |
| STEHEKIN near STEHEKIN | APR-SEP | 936 | 1004 | 1050 | 127 | 1096 | 1164 | 827 |
| | APR-JUL | 800 | 853 | 890 | 127 | 927 | 980 | 701 |
| | APR-JUN | 607 | 652 | 683 | 127 | 714 | 759 | 538 |
| ENTIAT RIVER near Ardenvoir | APR-SEP | 276 | 301 | 318 | 140 | 335 | 360 | 227 |
| | APR-JUL | 250 | 273 | 288 | 140 | 303 | 326 | 206 |
| | APR-JUN | 202 | 222 | 235 | 139 | 248 | 268 | 169 |
| WENATCHEE at Plain | APR-SEP | 1324 | 1430 | 1502 | 126 | 1574 | 1680 | 1190 |
| | APR-JUL | 1211 | 1289 | 1341 | 125 | 1393 | 1471 | 1072 |
| | APR-JUN | 986 | 1042 | 1080 | 125 | 1118 | 1174 | 864 |
| WENATCHEE R. at Peshastin | APR-SEP | 1494 | 1831 | 2060 | 126 | 2289 | 2626 | 1636 |
| | APR-JUL | 1359 | 1663 | 1870 | 126 | 2077 | 2381 | 1485 |
| | APR-JUN | 1120 | 1364 | 1530 | 127 | 1696 | 1940 | 1204 |
| STEMILT nr Wenatchee (miners in) | MAY-SEP | 125 | 153 | 172 | 125 | 191 | 219 | 138 |
| ICICLE CREEK near Leavenworth | APR-SEP | 387 | 411 | 427 | 124 | 443 | 467 | 344 |
| | APR-JUL | 357 | 379 | 394 | 124 | 409 | 431 | 318 |
| | APR-JUN | 287 | 310 | 326 | 124 | 342 | 365 | 263 |
| COLUMBIA R. bl Rock Island Dam (2) | APR-SEP | 67576 | 75688 | 81200 | 115 | 86712 | 94824 | 70485 |
| | APR-JUL | 57288 | 64142 | 68800 | 115 | 73458 | 80312 | 59736 |
| | APR-JUN | 45000 | 50359 | 54000 | 115 | 57641 | 63000 | 47007 |

WENATCHEE - CHELAN RIVER BASINS Reservoir Storage (1000 AF) - End of January

WENATCHEE - CHELAN RIVER BASINS Watershed Snowpack Analysis - February 1, 1999

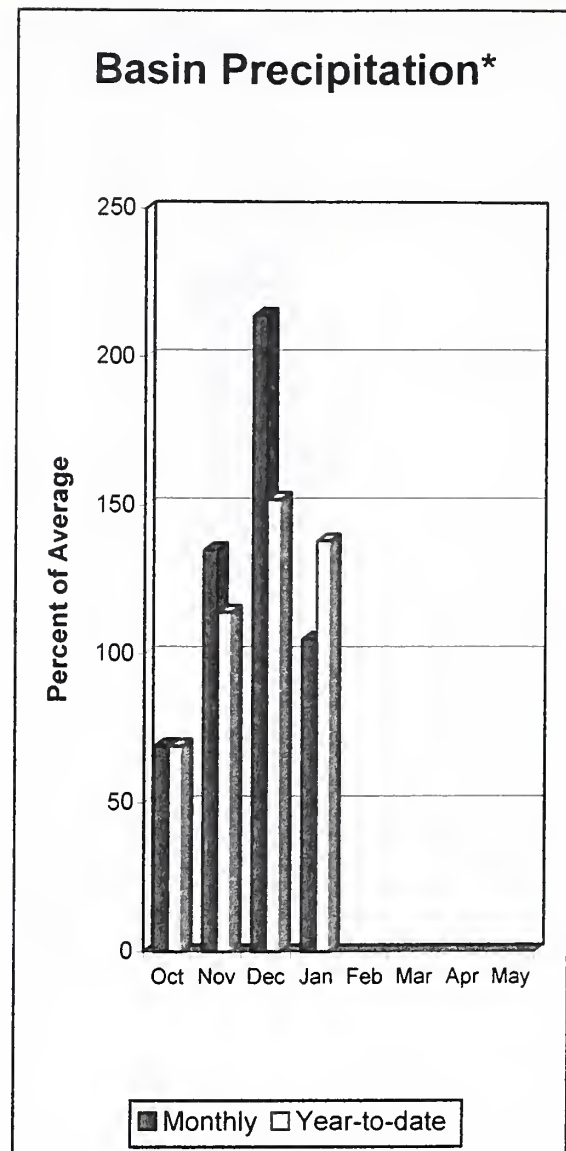
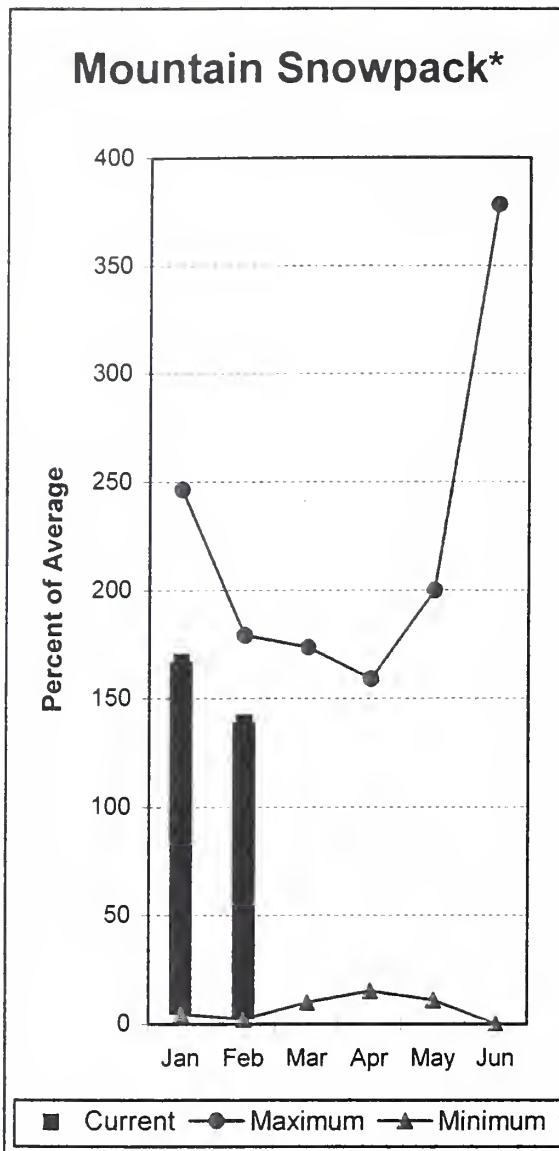
| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | Number of Data Sites | This Year as % of | |
|-------------|-----------------|------------------------|-----------|-------|-------------------|----------------------|-------------------|---------|
| | | This Year | Last Year | Avg | | | Last Yr | Average |
| CHELAN LAKE | 676.1 | 334.1 | 390.0 | 450.6 | CHELAN LAKE BASIN | 5 | 135 | 144 |
| | | | | | ENTIAT RIVER | 2 | 119 | 128 |
| | | | | | WENATCHEE RIVER | 13 | 127 | 139 |
| | | | | | SQUILCHUCK CREEK | 0 | 0 | 0 |
| | | | | | STEMILT CREEK | 2 | 130 | 128 |
| | | | | | COLOCKUM CREEK | 2 | 110 | 146 |

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

Upper Yakima River Basin



*Based on selected stations

February 1 reservoir storage for the Upper Yakima reservoirs was 432,100 acre feet, or 84% of average. Forecasts for the Yakima River at Cle Elum are for 124% of average. Lake inflows are all expected to be above average this summer. January streamflows within the basin were: the Yakima near Cle Elum 159% and the Cle Elum River near Roslyn at 169%. February 1 snowpack was 139% based upon 10 snow courses and SNOTEL readings within the Upper Yakima Basin. Precipitation was 105% of average for January and 138% for the water-year-to-date. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

For more information contact your local Natural Resources Conservation Service office.

Upper Yakima River Basin

Streamflow Forecasts - February 1, 1999

| Forecast Point | Forecast Period | <<===== Drier ===== | | Future Conditions | | ===== Wetter =====>> | | 30-Yr Avg. |
|-----------------------|-----------------|---------------------|-----------------|--|-----|----------------------|-----------------|------------|
| | | 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) (% AVG.) | | 30% (1000AF) | 10% (1000AF) | |
| KEECHELUS LAKE INFLOW | APR-JUL | 132 | 146 | 156 | 126 | 166 | 180 | 124 |
| | APR-SEP | 143 | 158 | 169 | 125 | 180 | 195 | 135 |
| | APR-JUN | 117 | 128 | 136 | 125 | 144 | 155 | 109 |
| KACHESS LAKE INFLOW | APR-JUL | 116 | 128 | 136 | 123 | 144 | 156 | 111 |
| | APR-SEP | 123 | 136 | 145 | 123 | 154 | 167 | 118 |
| | APR-JUN | 106 | 116 | 122 | 123 | 128 | 138 | 99 |
| CLE ELUM LAKE INFLOW | APR-JUL | 445 | 480 | 503 | 123 | 526 | 561 | 409 |
| | APR-SEP | 481 | 522 | 550 | 123 | 578 | 619 | 448 |
| | APR-JUN | 377 | 405 | 425 | 123 | 445 | 473 | 345 |
| YAKIMA at Cle Elum | APR-JUN | 789 | 852 | 895 | 124 | 938 | 1001 | 721 |
| | APR-JUL | 906 | 980 | 1030 | 124 | 1080 | 1154 | 832 |
| | APR-SEP | 995 | 1075 | 1130 | 124 | 1185 | 1265 | 915 |

| UPPER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of January | | | | | UPPER YAKIMA RIVER BASIN Watershed Snowpack Analysis - February 1, 1999 | | | |
|--|-----------------|------------------------|-----------|-------|--|----------------------|-------------------|---------|
| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | Number of Data Sites | This Year as % of | |
| | | This Year | Last Year | Avg | | | Last Yr | Average |
| KEECHELUS | 157.8 | 78.6 | 129.5 | 96.0 | UPPER YAKIMA RIVER | 12 | 132 | 139 |
| KACHESS | 239.0 | 152.1 | 166.3 | 170.0 | | | | |
| CLE ELUM | 436.9 | 201.4 | 325.7 | 251.0 | | | | |

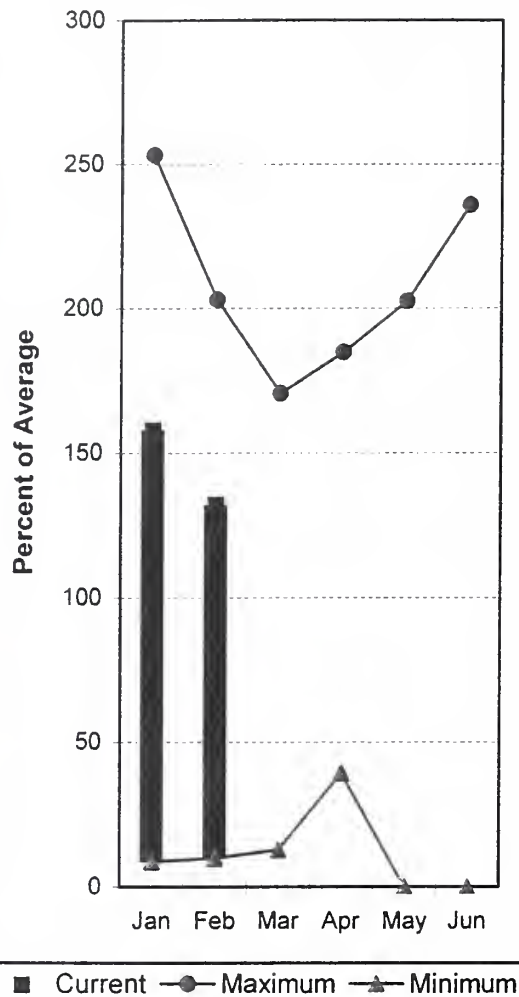
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

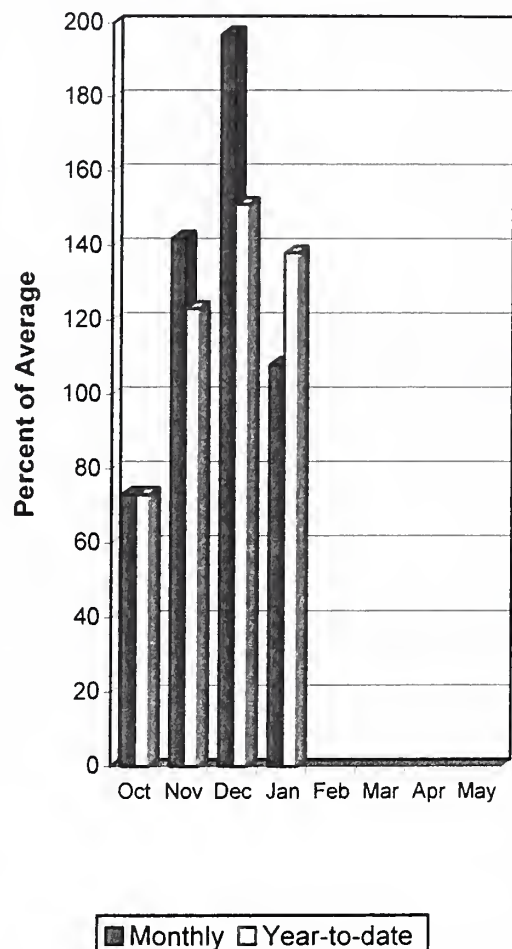
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

Lower Yakima River Basin

Mountain Snowpack*



Basin Precipitation*



*Based on selected stations

January streamflows within the basin were: the Yakima River near Parker, 156%; the Naches River near Naches, 166%; and the Yakima at Kiona, 149% of average. February 1 reservoir storage for the Bumping and Rimrock reservoirs was 122,700 acre feet, or 99% of average. Forecasts for the Yakima River at Parker, are for 120% of average; American River near Nile, 110%; Ahtanum Creek, 115%; and the Klickitat River near Glenwood, 160%. February 1 snowpack was 139% based upon 8 snow courses and SNOTEL readings within the Lower Yakima Basin. Precipitation was 108% of average for January and 138% for the water-year-to-date. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow. Temperatures for the month were 8-9 degrees above normal.

For more information contact your local Natural Resources Conservation Service office.

Lower Yakima River Basin

Streamflow Forecasts - February 1, 1999

| Forecast Point | Forecast Period | <<===== Drier ===== Future Conditions ===== Wetter =====>> | | | | | | |
|------------------------------|-----------------|--|----------|----------|----------|-----------------------|----------|------------|
| | | 90% | | 70% | | Chance Of Exceeding * | | 30-Yr Avg. |
| | | (1000AF) | (1000AF) | (1000AF) | (1000AF) | (1000AF) | (1000AF) | |
| BUMPING LAKE INFLOW | APR-SEP | 132 | 147 | 158 | 116 | 169 | 184 | 136 |
| | APR-JUL | 121 | 135 | 144 | 116 | 153 | 167 | 124 |
| | APR-JUN | 99 | 112 | 121 | 116 | 130 | 143 | 104 |
| AMERICAN RIVER near Nile | APR-SEP | 109 | 122 | 130 | 110 | 138 | 151 | 118 |
| | APR-JUL | 101 | 112 | 120 | 110 | 128 | 139 | 109 |
| | APR-JUN | 83 | 94 | 101 | 110 | 108 | 119 | 92 |
| RIMROCK LAKE INFLOW | APR-SEP | 223 | 248 | 265 | 111 | 282 | 307 | 238 |
| | APR-JUL | 189 | 209 | 222 | 111 | 235 | 255 | 200 |
| | APR-JUN | 154 | 169 | 180 | 111 | 191 | 206 | 162 |
| NACHES near Naches | APR-SEP | 826 | 903 | 955 | 115 | 1007 | 1084 | 832 |
| | APR-JUL | 758 | 825 | 870 | 115 | 915 | 982 | 755 |
| | APR-JUN | 653 | 711 | 750 | 115 | 789 | 847 | 651 |
| AHTANUM CREEK nr Tampico (2) | APR-SEP | 34 | 46 | 53 | 115 | 61 | 72 | 46 |
| | APR-JUL | 31 | 41 | 48 | 114 | 55 | 65 | 42 |
| | APR-JUN | 26 | 35 | 41 | 114 | 47 | 56 | 36 |
| YAKIMA near Parker | APR-SEP | 2078 | 2270 | 2400 | 120 | 2530 | 2722 | 1994 |
| | APR-JUL | 1876 | 2048 | 2165 | 120 | 2282 | 2454 | 1805 |
| | APR-JUN | 1670 | 1816 | 1915 | 120 | 2014 | 2160 | 1597 |
| KLICKITAT near Glenwood | APR-JUN | 158 | 171 | 179 | 163 | 187 | 200 | 110 |
| | APR-SEP | 194 | 212 | 224 | 160 | 236 | 254 | 140 |

LOWER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of January

LOWER YAKIMA RIVER BASIN Watershed Snowpack Analysis - February 1, 1999

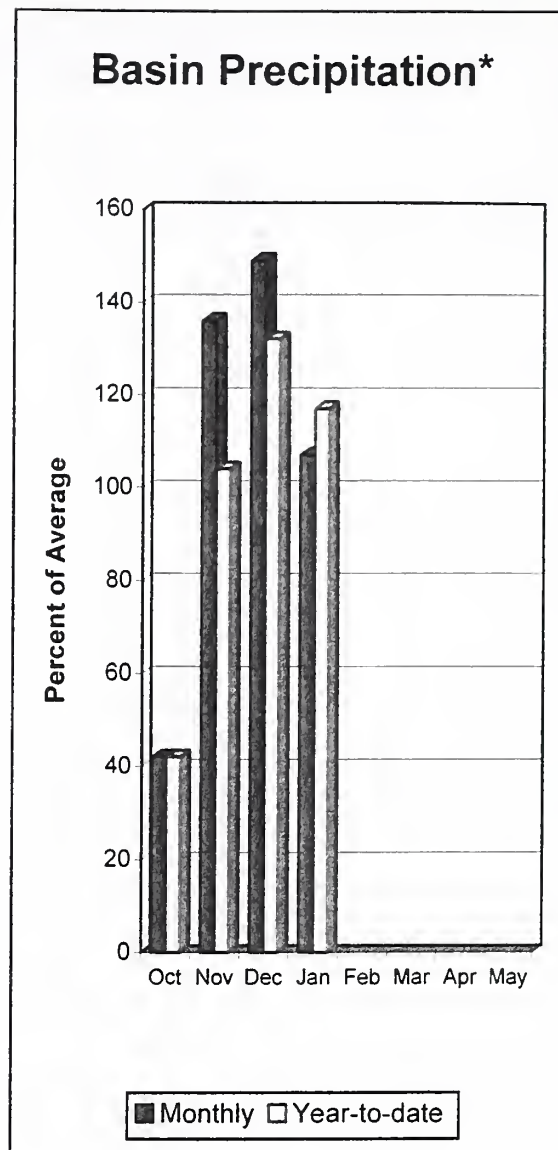
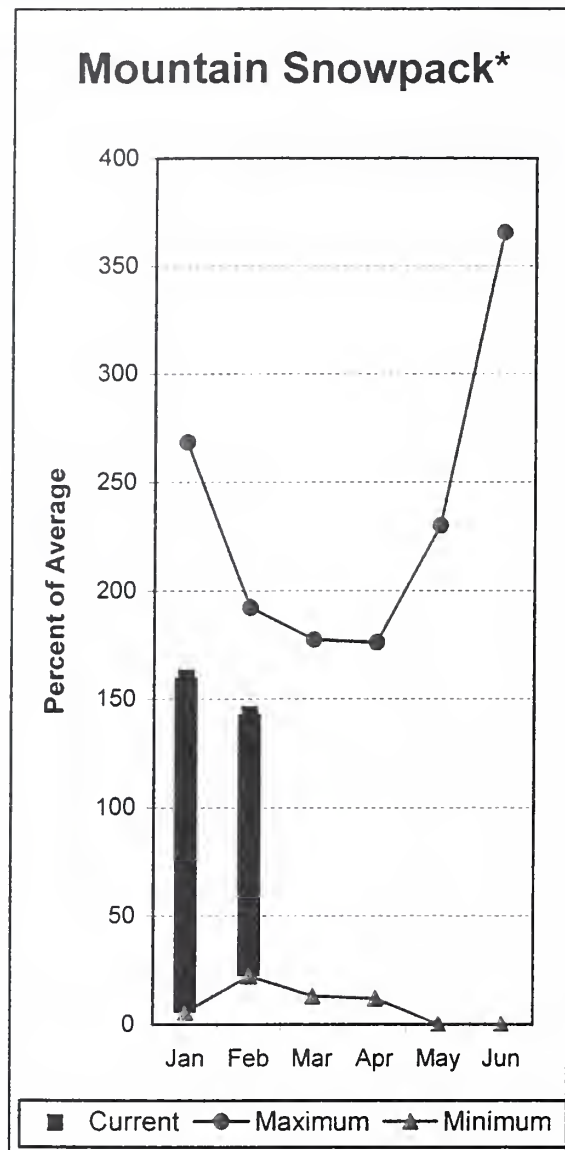
| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | Number of Data Sites | This Year as % of | |
|--------------|-----------------|------------------------|-----------|-------|--------------------|----------------------|-------------------|---------|
| | | This Year | Last Year | Avg | | | Last Yr | Average |
| BUMPING LAKE | 33.7 | 12.2 | 8.6 | 9.0 | LOWER YAKIMA RIVER | 8 | 114 | 139 |
| RIMROCK | 198.0 | 110.5 | 133.9 | 115.0 | AHTANUM CREEK | 3 | 135 | 124 |

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

Walla Walla River Basin



*Based on selected stations

January precipitation was 128% of average, bringing the year-to-date precipitation to 146% of average. February 1 snowpack was at 143% of average. The forecast is for 114% of average streamflow in the South Fork Walla Walla River and 149% for Mill Creek, during the coming summer. January streamflow was 239% of average for the Walla Walla River. The Touchet SNOTEL site had 33 inches of snow-water-equivalent. The average February 1 reading for this site is 20.8 inches. Average temperatures were about 5 degrees above normal for the area.

For more information contact your local Natural Resources Conservation Service office.

Walla Walla River Basin

Streamflow Forecasts - February 1, 1999

| | | <<===== Drier ===== Future Conditions ===== Wetter =====>> | | | | | | |
|--------------------------------------|-----------------|--|-----------------|---------------------------------|----------|-----------------|-----------------|------------------------|
| Forecast Point | Forecast Period | ===== | | Chance Of Exceeding * | | ===== | | 30-Yr Avg. (1000AF) |
| | | 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | |
| ===== | | | | | | | | |
| MILL CREEK at Walla Walla | APR-SEP | 17.3 | 22 | 25 | 149 | 29 | 34 | 17.1 |
| | APR-JUL | 17.3 | 22 | 25 | 150 | 29 | 34 | 16.9 |
| | APR-JUN | 17.0 | 22 | 25 | 150 | 28 | 33 | 16.7 |
| ===== | | | | | | | | |
| SF WALLA WALLA near Milton-Freewater | APR-JUL | 51 | 57 | 62 | 116 | 66 | 72 | 53 |
| | APR-SEP | 63 | 70 | 75 | 114 | 80 | 87 | 66 |

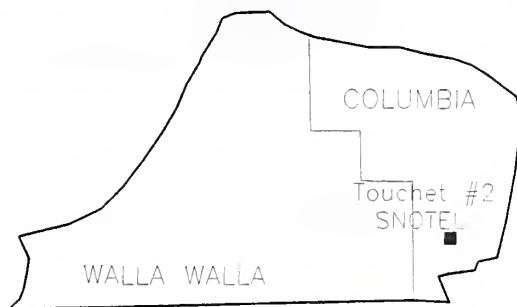
WALLA WALLA RIVER BASIN Reservoir Storage (1000 AF) - End of January

| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | WALLA WALLA RIVER BASIN Watershed Snowpack Analysis - February 1, 1999 | | |
|-----------|-----------------|------------------------|-----------|-----|-------------------|---|---------------------------|--------------|
| | | This Year | Last Year | Avg | | Number of Data Sites | This Year as % of Last Yr | % of Average |
| | | Year | Year | | | | | |
| | | | | | WALLA WALLA RIVER | 2 | 166 | 143 |

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

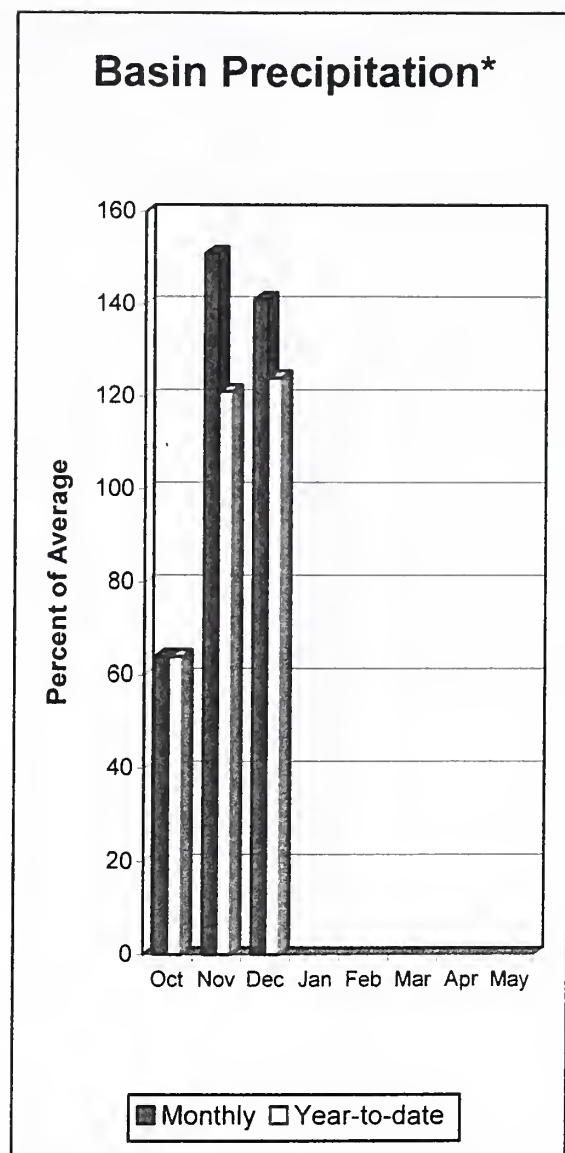
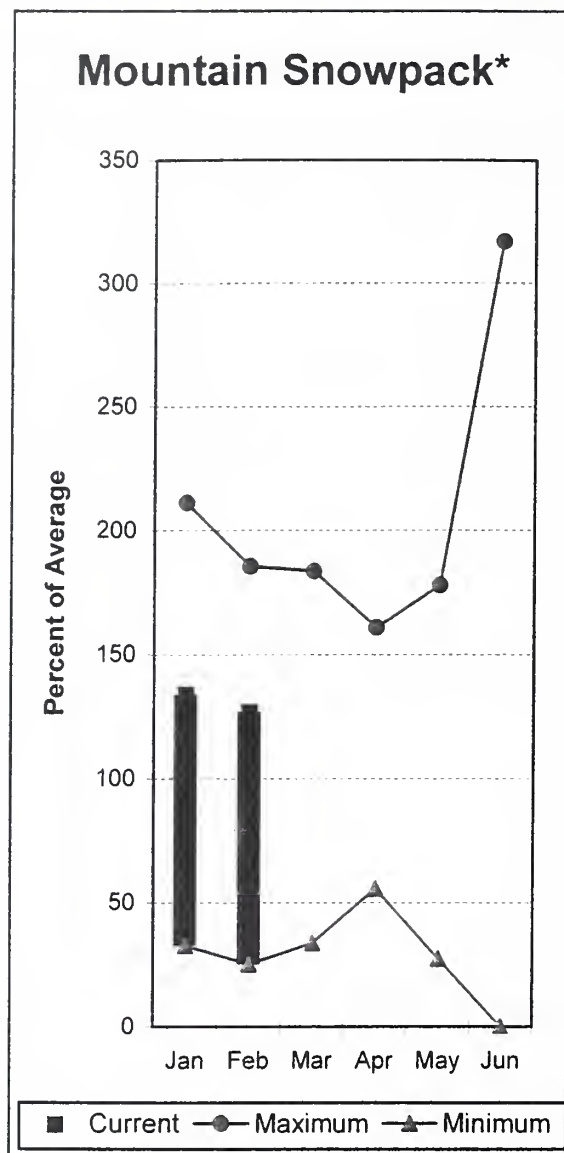


Mountain Snowpack & Precipitation
Walla Walla River Basin

Percent of Average
February 1, 1999

Snowpack - 143%
Precipitation - 117%

Lower Snake River Basin



*Based on selected stations

The April - September forecast is for 109% of average streamflow in the Snake River below Lower Granite Dam, the Grande Ronde at Troy, 111%, and the Clearwater River at Spalding, 114%. January precipitation was 90% of average, bringing the year-to-date precipitation to 115% of average. February 1 snowpack was at 139% of average. January streamflow was 150% of average for the Clearwater River; 124% for the Snake River below Lower Granite Dam; and 179% for the Grande Ronde River near Troy. Average temperatures were about 5 degrees above normal for the area.

Lower Snake River Basin

Streamflow Forecasts - February 1, 1999

| Forecast Point | Forecast Period | <<===== Drier ===== | | Future Conditions | | ===== Wetter =====>> | | 30-Yr Avg. (1000AF) |
|-----------------------------------|-----------------|-----------------------|-----------------|---------------------------------|----------|----------------------|-----------------|------------------------|
| | | Chance Of Exceeding * | | | | | | |
| | | 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | |
| GRANDE RONDE at Troy (1) | APR-SEP | 946 | 1299 | 1460 | 111 | 1621 | 1974 | 1312 |
| CLEARWATER at Spalding (1,2) | APR-JUL | 5682 | 7730 | 8660 | 114 | 9590 | 11638 | 7618 |
| | APR-SEP | 6009 | 8176 | 9160 | 114 | 10144 | 12311 | 8052 |
| SNAKE blw Lower Granite Dam (1,2) | APR-JUL | 14285 | 20691 | 23600 | 109 | 26509 | 32915 | 21650 |
| | APR-SEP | 16131 | 23330 | 26600 | 109 | 29870 | 37069 | 24360 |

LOWER SNAKE RIVER BASIN
Reservoir Storage (1000 AF) - End of January

LOWER SNAKE RIVER BASIN
Watershed Snowpack Analysis - February 1, 1999

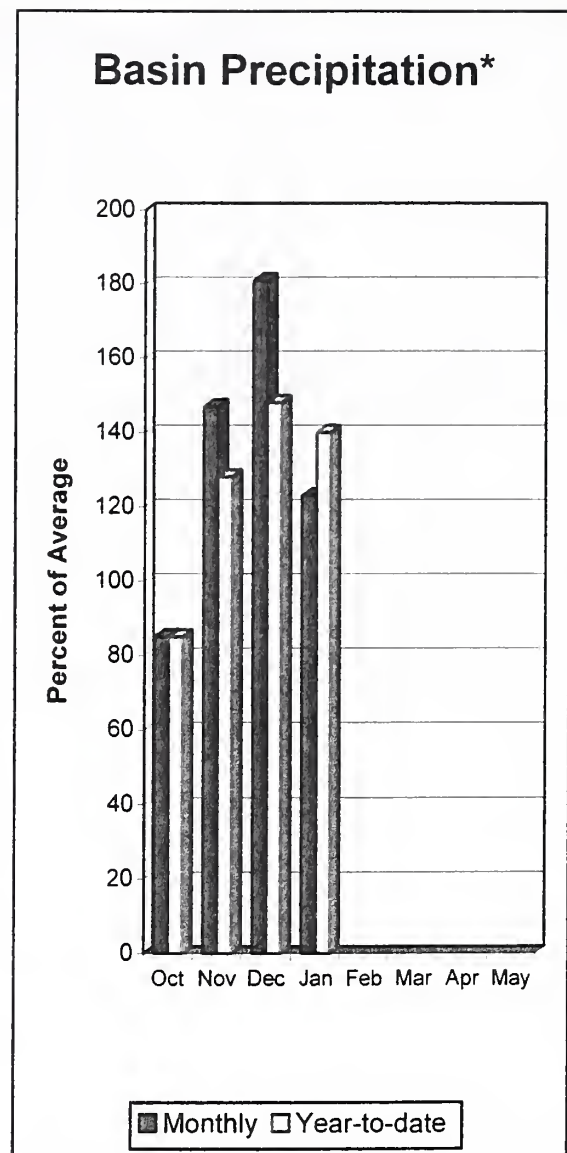
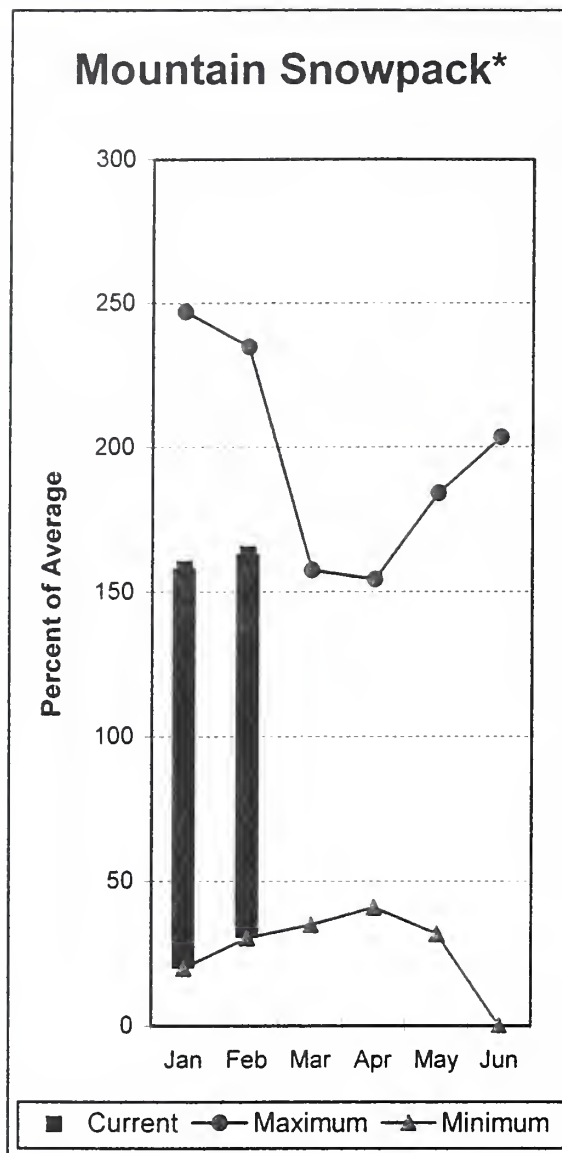
| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | Number of Data Sites | This Year as % of | |
|-----------|-----------------|------------------------|-----------|-----|---------------------------|----------------------|-------------------|---------|
| | | This Year | Last Year | Avg | | | Last Yr | Average |
| | | | | | LOWER SNAKE, GRANDE RONDE | 14 | 133 | 127 |

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

Cowlitz - Lewis River Basins



*Based on selected stations

The forecast for summer runoff in the Lewis River Basin is 119% of average. The forecast for the Cowlitz River at Castle Rock is for 115%, and the Columbia River at The Dalles is 111% of average runoff. January streamflow for the Cowlitz River was 136% of average and 124% for the Lewis River. January precipitation was 123% of average, 140% of average for the water-year. February 1 snow cover for the Cowlitz River was 158%, and the Lewis River was 168% of average. The Paradise Park SNOTEL recorded the most water content for the basin with 59.3 inches of water. Average February 1 water content is 38.5 inches. Average temperatures were about 3 degrees above normal during January.

For more information contact your local Natural Resources Conservation Service office.

Cowlitz - Lewis River Basins

Streamflow Forecasts - February 1, 1999

| Forecast Point | Forecast Period | <<===== Drier ===== Future Conditions ===== Wetter =====> | | | | | | 30-Yr Avg. (1000AF) |
|--------------------------------|-----------------|---|-----------------|---------------------------------|----------|-----------------|-----------------|------------------------|
| | | Chance Of Exceeding * | | | | | | |
| | | 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | |
| LEWIS at Ariel (2) | APR-JUL | 955 | 1129 | 1248 | 119 | 1367 | 1541 | 1053 |
| | APR-SEP | 1127 | 1308 | 1430 | 119 | 1552 | 1733 | 1206 |
| | APR-JUN | 824 | 988 | 1100 | 118 | 1212 | 1376 | 935 |
| COWLITZ R. bl Mayfield Dam (2) | APR-SEP | 1372 | 1865 | 2200 | 112 | 2535 | 3028 | 1970 |
| | APR-JUL | 1204 | 1636 | 1930 | 112 | 2224 | 2656 | 1731 |
| | APR-JUN | 1020 | 1389 | 1640 | 111 | 1891 | 2260 | 1477 |
| COWLITZ R. at Castle Rock (2) | APR-SEP | 2190 | 2714 | 3070 | 115 | 3426 | 3950 | 2667 |
| | APR-JUL | 1912 | 2369 | 2680 | 115 | 2991 | 3448 | 2325 |
| | APR-JUN | 1635 | 2028 | 2295 | 115 | 2562 | 2955 | 1995 |
| KLICKITAT near Glenwood | APR-JUN | 158 | 171 | 179 | 163 | 187 | 200 | 110 |
| | APR-SEP | 194 | 212 | 224 | 160 | 236 | 254 | 140 |
| COLUMBIA R. at The Dalles (2) | APR-SEP | 87730 | 100990 | 110000 | 111 | 119010 | 132270 | 98982 |
| | APR-JUL | 75483 | 86806 | 94500 | 112 | 102194 | 113517 | 84760 |
| | APR-JUN | 61114 | 70275 | 76500 | 111 | 82725 | 91886 | 68925 |

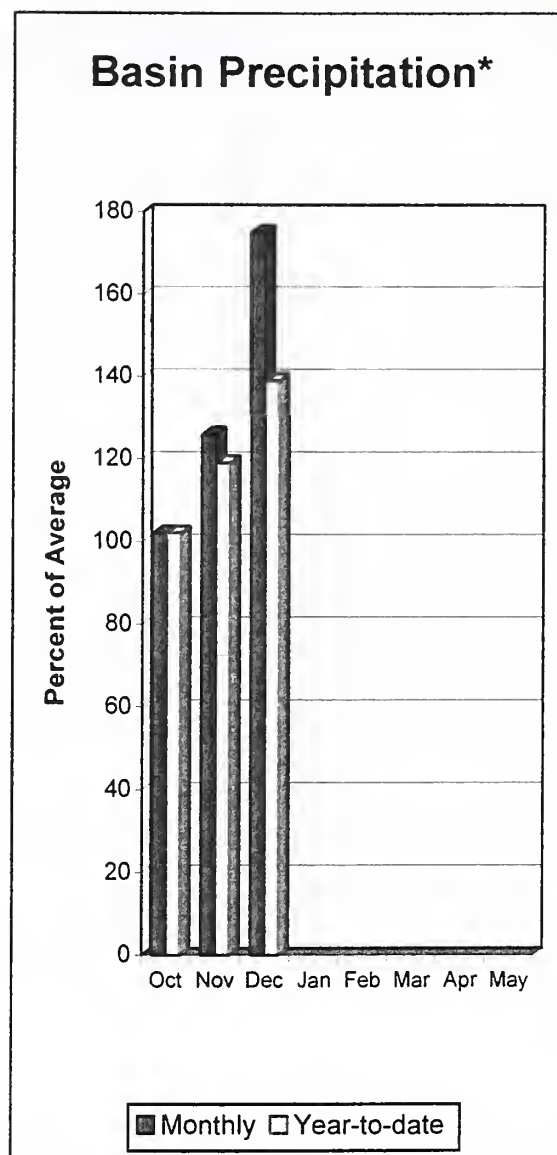
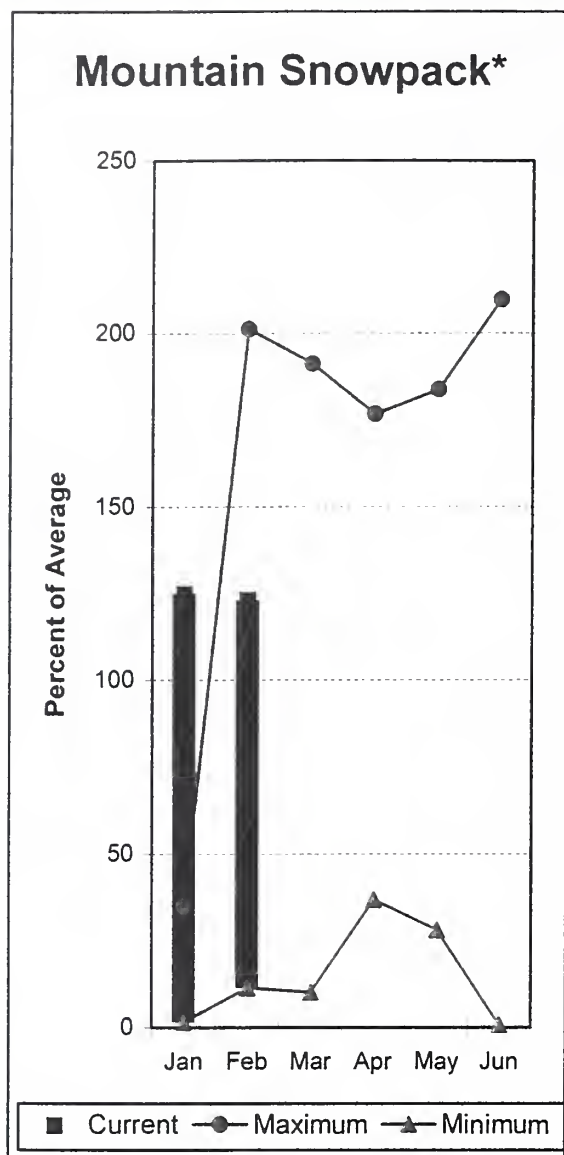
| COWLITZ - LEWIS RIVER BASINS Reservoir Storage (1000 AF) - End of January | | | | | COWLITZ - LEWIS RIVER BASINS Watershed Snowpack Analysis - February 1, 1999 | | | |
|--|-----------------|------------------------|-----------|-----|--|----------------------|-------------------|---------|
| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | Number of Data Sites | This Year as % of | |
| | | This Year | Last Year | Avg | | | Last Yr | Average |
| | | | | | LEWIS RIVER | 4 | 143 | 168 |
| | | | | | COWLITZ RIVER | 7 | 145 | 158 |

70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

White - Green River Basins



*Based on selected stations

Summer runoff is forecast to be 110% of average for the Green River and 112% of average for the White River near Buckley. February 1 snowpack was 129% of average in the White River Basin; 129% in the Puyallup River Basin; and 110% in the Green River Basin. Water content on February 1 at the Corral Pass SNOTEL, at an elevation of 6,000 feet, was 31.0 inches. This site has a February 1 average of 21.3 inches. January precipitation was 110% of average, bringing the water-year-to-date to 130% of average for the basins. Average temperatures in the area were 1-2 degrees above normal.

For more information contact your local Natural Resources Conservation Service office.

White - Green - Puyallup River Basins

Streamflow Forecasts - February 1, 1999

| | | <<===== Drier ===== | | Future Conditions | | ===== Wetter =====>> | | | |
|---------------------------------|-----------------|---------------------|-----------------|--|-----|----------------------|-----------------|------------------------|--|
| Forecast Point | Forecast Period | ===== | | Chance Of Exceeding * | | ===== | | 30-Yr Avg. (1000AF) | |
| | | 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) (% AVG.) | | 30% (1000AF) | 10% (1000AF) | | |
| ===== | | | | | | | | | |
| WHITE near Buckley (1,2) | APR-JUL | 403 | 470 | 501 | 112 | 532 | 599 | 447 | |
| | APR-SEP | 491 | 569 | 605 | 112 | 641 | 719 | 542 | |
| | | | | | | | | | |
| GREEN below Howard Hanson (1,2) | APR-JUL | 199 | 257 | 284 | 111 | 311 | 369 | 257 | |
| | APR-SEP | 227 | 287 | 314 | 110 | 341 | 401 | 285 | |
| | APR-JUN | 179 | 233 | 258 | 110 | 283 | 337 | 234 | |

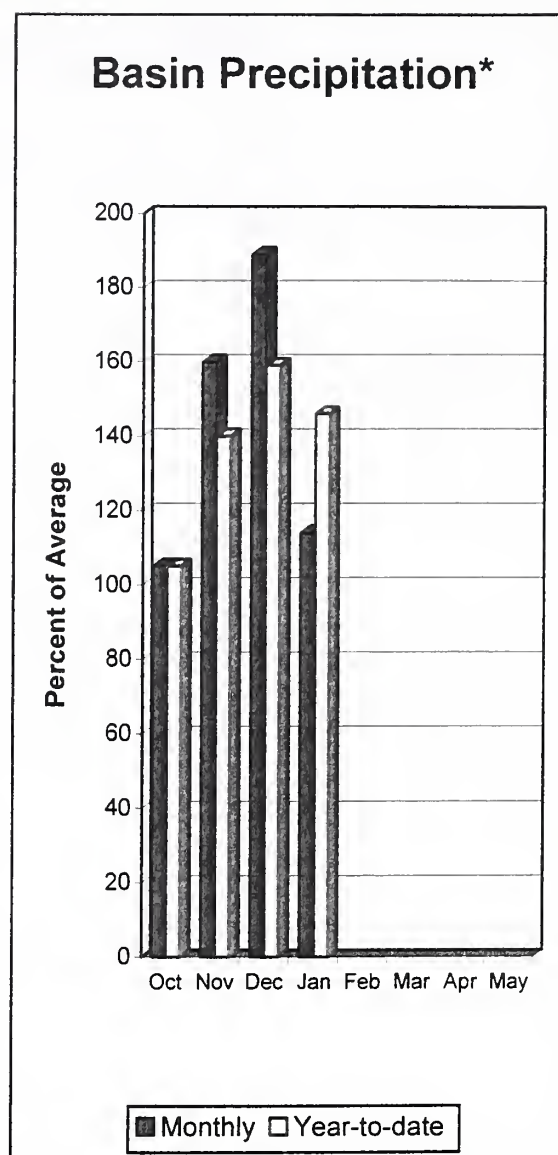
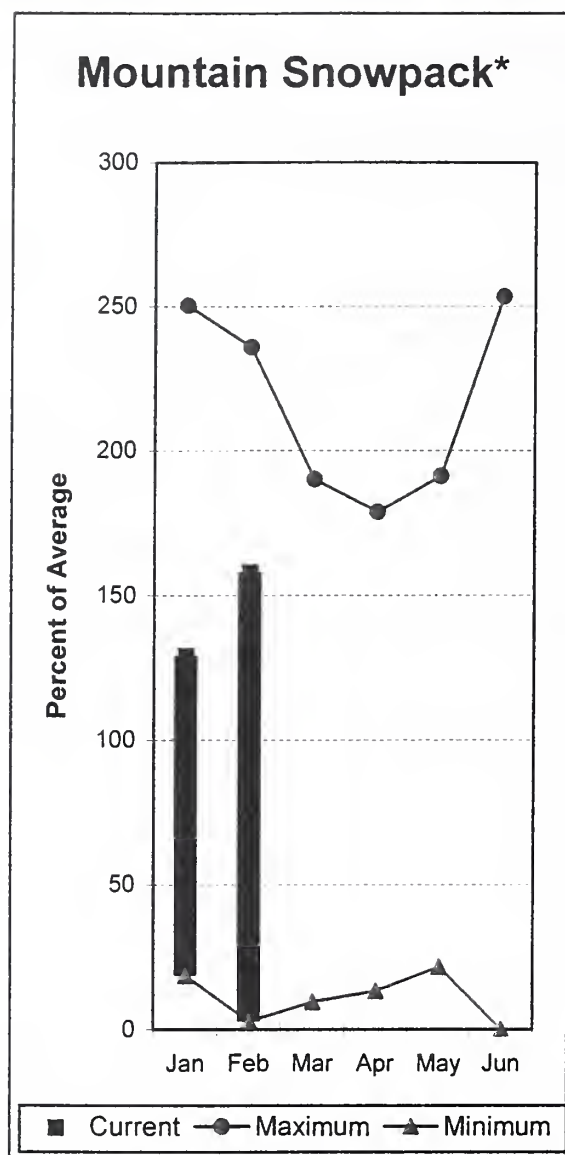
| WHITE - GREEN - PUYALLUP RIVER BASINS Reservoir Storage (1000 AF) - End of January | | | | | WHITE - GREEN - PUYALLUP RIVER BASINS Watershed Snowpack Analysis - February 1, 1999 | | | |
|---|--------------------|------------------------|--------------|-----|---|----------------------------|-------------------|---------|
| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | Number of Data Sites | This Year as % of | |
| | | This Year | Last Year | Avg | | | Last Yr | Average |
| | | | | | WHITE RIVER | 3 | 104 | 129 |
| | | | | | GREEN RIVER | 6 | 122 | 110 |
| | | | | | PUYALLUP RIVER | 3 | 104 | 129 |

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

Central Puget Sound River Basins



*Based on selected stations

Forecast for spring and summer flows are 122% for the Cedar River near Cedar Falls; 125% for the Rex River; 115% for the South Fork of the Tolt River; and 125% for the Cedar River at Cedar Falls. Basin-wide precipitation for January was 114% of average, bringing water-year-to-date to 146% of average. February 1 snow cover in the Cedar River Basin was 152%; the Tolt River Basin was 179%; the Snoqualmie River Basin was 147%; and the Skykomish River Basin was 156% of average. Stevens Pass SNOTEL, at 4,070 feet, had 35.8 inches of water content. Average February 1 water content is 27.3 inches. January temperatures were 1-2 degrees above normal.

For more information contact your local Natural Resources Conservation Service office.

Central Puget Sound River Basins

Streamflow Forecasts - February 1, 1999

| | | <<===== Drier ===== | | Future Conditions ===== | | Wetter =====>> | | |
|----------------------------|--------------------|---------------------|-----------------|---------------------------------|----------|-----------------|-----------------|------------------------|
| Forecast Point | Forecast Period | ===== | | Chance Of Exceeding * | | ===== | | 30-Yr Avg. (1000AF) |
| | | 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | |
| ===== | | | | | | | | |
| CEDAR near Cedar Falls | APR-JUL | 75 | 86 | 94 | 122 | 101 | 113 | 77 |
| | APR-SEP | 83 | 95 | 103 | 122 | 111 | 123 | 84 |
| | APR-JUN | 67 | 76 | 83 | 122 | 89 | 99 | 68 |
| | | | | | | | | |
| REX near Cedar Falls | APR-JUL | 26 | 31 | 34 | 126 | 38 | 43 | 27 |
| | APR-SEP | 29 | 34 | 38 | 125 | 42 | 47 | 30 |
| | APR-JUN | 23 | 28 | 31 | 126 | 34 | 39 | 25 |
| | | | | | | | | |
| CEDAR RIVER at Cedar Falls | APR-JUL | 75 | 92 | 104 | 127 | 116 | 133 | 82 |
| | APR-SEP | 76 | 93 | 104 | 125 | 115 | 132 | 83 |
| | APR-JUN | 75 | 91 | 101 | 126 | 111 | 127 | 80 |
| | | | | | | | | |
| SOUTH FORK TOLT near Index | APR-JUL | 14.3 | 16.3 | 17.6 | 116 | 18.9 | 21 | 15.2 |
| | APR-SEP | 16.9 | 19.0 | 20 | 115 | 22 | 24 | 17.8 |
| | APR-JUN | 11.9 | 13.8 | 15.0 | 115 | 16.2 | 18.1 | 13.1 |
| | | | | | | | | |

CENTRAL PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of January

CENTRAL PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - February 1, 1999

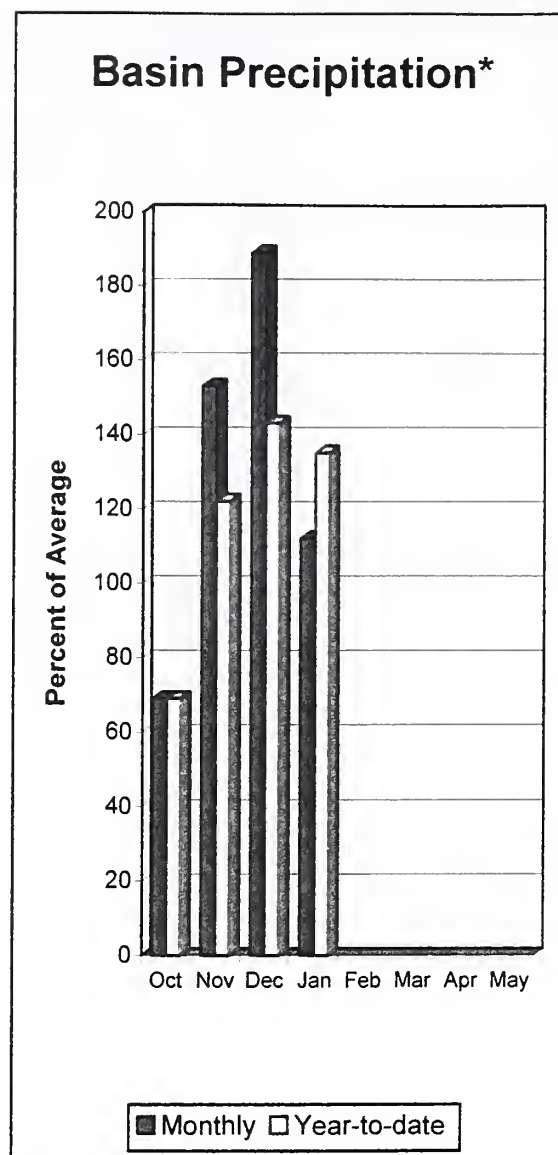
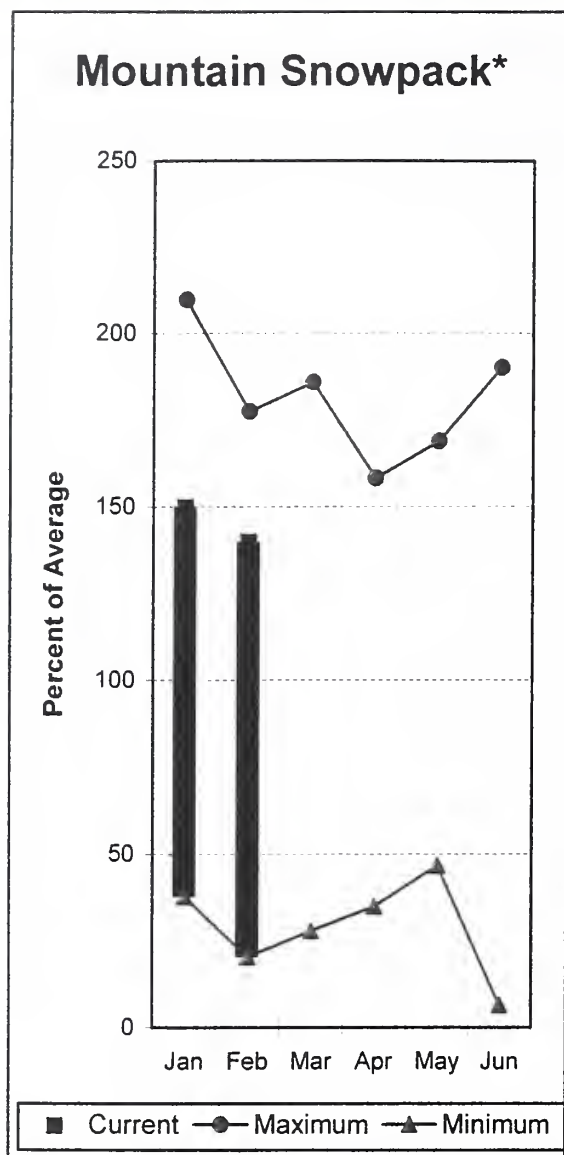
| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | Number of Data Sites | This Year as % of | |
|-----------|-----------------|------------------------|-----------|-----|------------------|----------------------|-------------------|---------|
| | | This Year | Last Year | Avg | | | Last Yr | Average |
| | | | | | CEDAR RIVER | 4 | 113 | 152 |
| | | | | | TOLT RIVER | 2 | 121 | 179 |
| | | | | | SNOQUALMIE RIVER | 5 | 128 | 147 |
| | | | | | SKYKOMISH RIVER | 3 | 125 | 156 |

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural flow - actual flow may be affected by upstream water management.

North Puget Sound River Basins



*Based on selected stations

Forecast for the Skagit River streamflow is for 118% of average for the spring and summer period. January streamflow in the Skagit River was 118% of average. Other forecast points included the Baker River at 121%; and Thunder Creek at 111% of average. Basin-wide precipitation for January was 112% of average, bringing water-year-to-date to 135% of average. February 1 snow cover in the Skagit River Basin was 145%, the Baker River Basin was 143%, and the Nooksack River Basin was 133% of average. Rainy Pass SNOTEL, at 4,780 feet, had 40.1 inches of water content. Average February 1 water content is 24.5 inches. February 1 Skagit River reservoir storage was 89% average and 66% of capacity. Average January temperatures were 2-4 degrees above normal for the basin.

For more information contact your local Natural Resources Conservation Service office.

North Puget Sound River Basins

Streamflow Forecasts - February 1, 1999

| | | <<===== Drier ===== | | Future Conditions | | ===== Wetter =====>> | | |
|-------------------------------|-----------------|---------------------|-----------------|---------------------------------|----------|----------------------|-----------------|------------------------|
| Forecast Point | Forecast Period | ===== | | Chance Of Exceeding * | | ===== | | 30-Yr Avg. (1000AF) |
| | | 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | |
| ===== | | | | | | | | |
| • THUNDER CREEK near Newhalem | APR-JUL | 232 | 247 | 257 | 112 | 267 | 282 | 230 |
| | APR-SEP | 334 | 352 | 364 | 111 | 376 | 394 | 328 |
| | APR-JUN | 135 | 153 | 165 | 111 | 177 | 195 | 149 |
| ===== | | | | | | | | |
| • SKAGIT at Newhalem (2) | APR-JUL | 1986 | 2123 | 2217 | 118 | 2311 | 2448 | 1879 |
| | APR-SEP | 2347 | 2489 | 2585 | 118 | 2681 | 2823 | 2191 |
| | APR-JUN | 1554 | 1659 | 1730 | 119 | 1801 | 1906 | 1455 |
| ===== | | | | | | | | |
| BAKER RIVER near Concrete | APR-JUL | 889 | 963 | 1014 | 121 | 1065 | 1139 | 836 |
| | APR-SEP | 1137 | 1228 | 1290 | 121 | 1352 | 1443 | 1064 |
| | APR-JUN | 633 | 697 | 740 | 121 | 783 | 847 | 611 |

NORTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of January

NORTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - February 1, 1999

| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | Number of Data Sites | This Year as % of | |
|------------------|-----------------|------------------------|-----------|--------|----------------|----------------------|-------------------|---------|
| | | This Year | Last Year | Avg | | | Last Yr | Average |
| ROSS | 1404.1 | 923.5 | 981.0 | 1033.9 | SKAGIT RIVER | 10 | 146 | 149 |
| DIABLO RESERVOIR | | NO REPORT | | | BAKER RIVER | 3 | 129 | 143 |
| GORGE RESERVOIR | | NO REPORT | | | NOOKSACK RIVER | 2 | 153 | 133 |

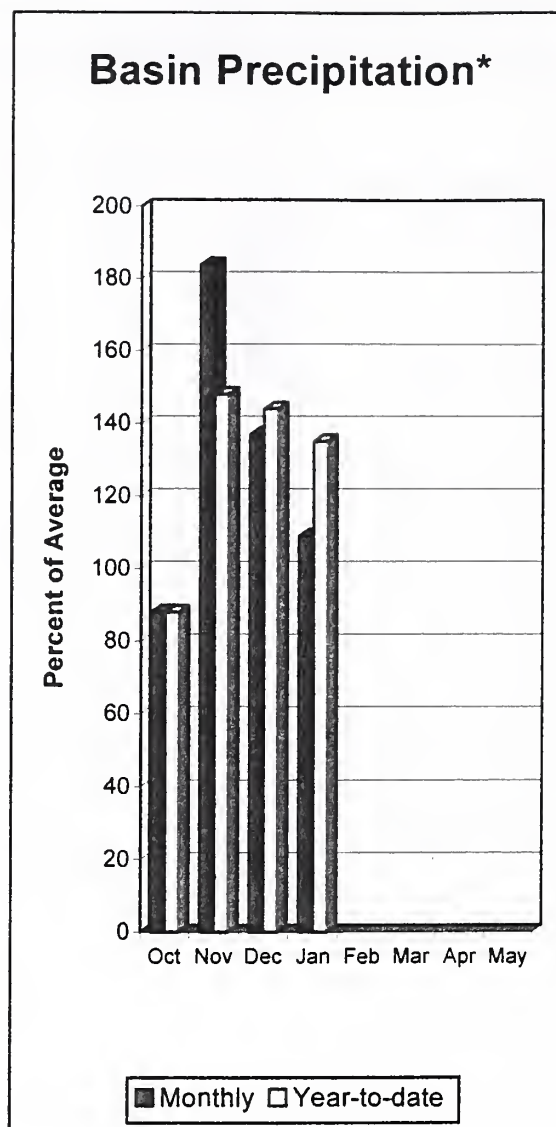
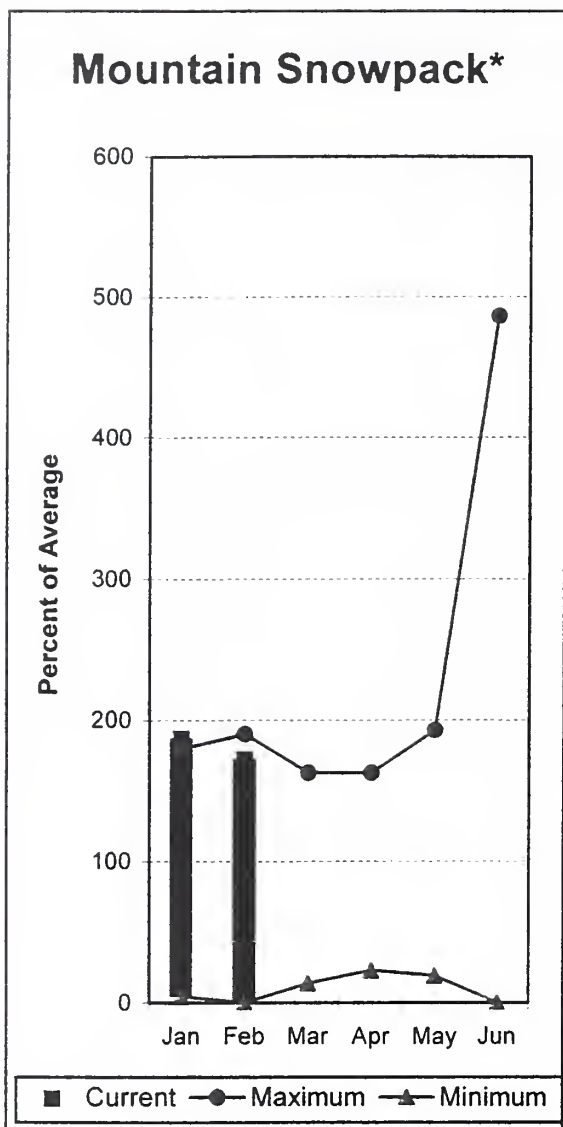
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) The value is natural flow - actual flow may be affected by upstream water management.

Olympic Peninsula River Basins



*Based on selected stations

February forecasts of runoff for streamflow in the Dungeness River Basin are 121% of average and 126% of average for the Elwha River. The Big Quilcene and Wynoochee rivers can expect above average runoff this summer also. January precipitation was 109% of average. Precipitation has accumulated at 135% of average for the water-year. January precipitation at Quillayute was 15.1 inches. The thirty-year average for January is 14.7 inches. February 1 snow cover in the Olympic Basin was at 172% of average. The Mount Crag SNOTEL near Quilcene had 37 inches of snow-water-equivalent on February 1. Average for this site is 16.9 inches. Temperatures were slightly above average for the month.

For more information contact your local Natural Resources Conservation Service office.

Olympic Peninsula River Basins

Streamflow Forecasts - February 1, 1999

| | | <<===== Drier =====>> | | Future Conditions | | ===== Wetter =====> | | |
|---------------------------|-----------------|-----------------------|-----------------|---------------------------------|----------|---------------------|-----------------|------------------------|
| Forecast Point | Forecast Period | ===== | | Chance Of Exceeding * | | ===== | | 30-Yr Avg. (1000AF) |
| | | 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | |
| ===== | | | | | | | | |
| * DUNGENESS near Sequim | APR-SEP | 168 | 178 | 185 | 121 | 192 | 202 | 153 |
| | APR-JUL | 140 | 148 | 153 | 122 | 158 | 166 | 125 |
| | APR-JUN | 101 | 109 | 115 | 122 | 121 | 129 | 94 |
| ===== | | | | | | | | |
| * ELWHA near Port Angeles | APR-SEP | 577 | 617 | 644 | 126 | 671 | 711 | 510 |
| | APR-JUL | 480 | 511 | 532 | 126 | 553 | 584 | 424 |

OLYMPIC PENINSULA RIVER BASINS Reservoir Storage (1000 AF) - End of January

OLYMPIC PENINSULA RIVER BASINS Watershed Snowpack Analysis - February 1, 1999

| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | Number of Data Sites | This Year as % of | |
|-----------|-----------------|------------------------|-----------|-----|-------------------|----------------------|-------------------|---------|
| | | This Year | Last Year | Avg | | | Last Yr | Average |
| | | | | | OLYMPIC PENINSULA | 4 | 163 | 172 |
| | | | | | ELWHA RIVER | 1 | 197 | 160 |
| | | | | | MORSE CREEK | 1 | 136 | 153 |
| | | | | | DUNGENESS RIVER | 1 | 181 | 164 |
| | | | | | QUILCENE RIVER | 1 | 171 | 219 |
| | | | | | WYNOOCHEE RIVER | 0 | 0 | 0 |

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) The value is natural flow - actual flow may be affected by upstream water management.

Issued by

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The Following Organizations Cooperate with the Natural Resources Conservation Service in Snow Survey Work*:

| | |
|----------------|--|
| Canada | Ministry of the Environment Investigations Branch, Victoria, British Columbia |
| State | Washington State Department of Ecology Washington State Department of Natural Resources |
| Federal | Department of the Army Corps of Engineers U.S. Department of Agriculture Forest Service U.S. Department of Commerce NOAA, National Weather Service U.S. Department of Interior Bonneville Power Administration Bureau of Reclamation Geological Survey National Park Service Bureau of Indian Affairs |
| Local | City of Tacoma City of Seattle Chelan County P.U.D. Pacific Power and Light Company Puget Sound Power and Light Company Washington Water Power Company Snohomish County P.U.D. Colville Confederated Tribes Spokane County Yakama Indian Nation Whatcom County Pierce County |
| Private | Okanogan Irrigation District Wenatchee Heights Irrigation District Newman Lake Homeowners Association Whitestone Reclamation District |

*Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.



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